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INTRAVENOUS MEDICATION

PHYSIOLOGIC PRINCIPLES AND THERAPEUTIC APPLICATIONS *

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The importance of Harvey's demonstration of the circulation of the blood was early recognized by Robert Boyle and by Christopher Wren.[1] They realized the possibility of intravenous medication and injected drugs intravenously into experimental animals. Their discussions regarding this subject evidently had a stimulating influence on other scientists and physicians of that day, for in the year 1665 Richard Lower [2] performed the first direct transfusion of blood from one animal to another. Within two years, Denis of Paris carried out a similar transfusion from a sheep into a man without mishap. This therapeutic procedure was repeated on several occasions, but because of a fatal reaction the French civil authorities banned the further practice of transfusion in man. Experiences with infusion medication in different diseases gradually grew in number, but during the entire eighteenth century the attention of the medical profession was focused on bloodletting to the neglect of blood transfusion, which was scarcely mentioned in medical literature. However, Blundell,[3] in 1818, realizing the hopelessness of treatment in a fatal case of uterine hemorrhage, carried out animal experiments and later transfusions in man, the results of which again demonstrated the practical usefulness of blood transfusion, particularly after severe hemorrhage. Compared with modern technic, Blundell's methods were crude; but his pioneer work marks a definite advance in the solution of a difficult problem.

During the epidemic of Asiatic cholera in western Europe in 1831 and 1832, Latta,[4] a physician of Leith, Scotland, introduced the practice of giving intravenous "saline infusions" to patients in severe collapse. This procedure was suggested to him by the chemists, who found the blood in malignant cholera to be deficient in water and saline matter. Temporary benefit and even recovery sometimes followed the saline infusion. This treatment was then applied by other physicians. Mackintosh [5] of Edinburgh, in particular, put it to severe test and remarked that he had no doubt as to there being a deficiency of serum in these cases since the giving of artificial serum caused the serious symptoms to vanish; that blood drawn after the saline infusion appeared to be normal and that, when the unfavorable symptoms recurred again and again, the system had been restored by intravenous injection and the patients ultimately had been saved. In the same issue of the *Lancet* in which the preliminary reports of this treatment were published, the editor in his weekly leading article considered at length this new method of treatment. His opening sentence reminds one of similar editorials written in our day concerning notable discoveries in medicine: "The papers which we publish this day on the effects produced in several desperate cases of cholera by the injection into the veins of water containing the salts of the blood in solution will be read with the most lively interest and satisfaction." Thus, a hundred years ago began the rational intravenous treatment for dehydration.

In the last quarter of the nineteenth century transfusion of blood was still a comparatively rare procedure, but because of the ease of administration intravenous infusion of saline solutions became popular. Landsteiner's [6] discovery in 1901 of iso-agglutinins in the blood and his division of the blood of human beings into groups on the basis of their content of agglutinins, and Moss's [7] observation in 1910 that hemolysis never occurs without previous agglutination, furnished the first satisfactory means of averting the severe and sometimes fatal reactions that occurred after transfusion of blood. Carrel [8] and Crile,[9] during the same period, described practical surgical methods for the direct transfusion of blood. However, the demonstration by Agote [10] in 1914, and the independent observation by Weil [11] and by Lewisohn [12] in 1915, that sodium citrate could be used as an anticoagulant in transfusions without toxic effects, and the coincident development of the technic for obtaining venous blood with needle and syringe, has done much to simplify the technic and so to increase the use of transfusion of blood.

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* Chairman's address, read before the Section on Pharmacology and Therapeutics at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 10, 1929.

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3. Blundell, J.: Experiments on the Transfusion of Blood by the Syringe, Tr. M. Chir. London **9**: 56-92, 1818.

4. Latta, Thomas: Letter to the Secretary of the Central Board of Health, London, Affording a View of the Rationale and Results of His Practice in the Treatment of Cholera by Aqueous and Saline Injections, Lancet **18**: 274-277, 1831-1832.

5. Mackintosh, John: Elements of Pathology, and Practice of Physic, Philadelphia, E. C. Biddle **2**, 1837.

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7. Moss, W. L.: Studies on Iso-Agglutinins and Ischemolysin, Bull. Johns Hopkins Hosp. **21**: 63-70, 1910.

8. Carrel, Alexis: La transfusion directe du sang (Méthode de Crile), Lyon Chir. **1**: 13-19, 1908-1909.

9. Crile, George: The Technique of Direct Transfusion of Blood, Ann. Surg. **46**: 329-332, 1907.

10. Agote, L.: Nouveau procédé pour la transfusion du sang, Ann. d. Inst. med. clin. méd. **1**: 25-30, 1914-1915.

11. Weil, Richard: Sodium Citrate in the Transfusion of Blood, J. A. M. A. **64**: 425-426 (Jan. 30) 1915.

12. Lewisohn, Richard: A New and Greatly Simplified Method of Blood Transfusion: A Preliminary Report, M. Rec. **87**: 141-142, 1915.

The rapid advances made in bacteriology and biologic chemistry since the beginning of the present century made it almost imperative in some cases that samples of blood be obtained repeatedly, even daily, from the same subject; hence, the development of the modern technic for obtaining venous blood. We now consider this procedure indispensable to the practice of medicine. I can well recall my satisfaction when, as a hospital intern, I first inserted a needle successfully into the lumen of a vein of an arm and collected the necessary sample of blood. Just as the needle has made withdrawal of venous blood a simple measure, so the needle in replacing the cannula has markedly simplified intravenous injection. The intravenous introduction of a considerable volume of fluid such as blood, sodium chloride solutions or solutions of sugar has become a frequent procedure, particularly when a quick effect is desired, as after severe hemorrhage, in surgical shock and in states of marked dehydration. Since Ehrlich's introduction of arsphenamine, intravenous medication has had an important place in the treatment of certain diseases caused by specific agents, especially those due to spirochetes and trypanosomes. The reasons for intravenous administration of the remedies used in these diseases are that some have little therapeutic effect when given by mouth; that others, when injected into skin or muscle, cause pain or even necrosis, and that in some instances of severe infection rapid action is necessary.

The promiscuous intravenous injection of many well known drugs is wrong in principle and in practice. Before specific details as to the indications for intravenous medication are discussed, it is necessary to stress the importance of using chemical substances of the highest purity and water that not only is sterile but also free from all traces of organic matter. Impure water has undoubtedly been responsible for a large number of reactions following intravenous medication. Tap water may or may not contain organic material, depending on the source of supply. Nevertheless, the safest procedure is to use water that has been freshly redistilled through an all-glass still and quickly sterilized. Since dextrose is important in intravenous therapy, it is imperative to secure not only a chemically pure but also a nontoxic preparation. A wise procedure is to subject each new lot of dextrose intended for intravenous use to preliminary trial by injection into an animal. This precaution has prevented serious reactions. The rate of injection of intravenous solutions is often too rapid; from 30 to 40 cc. each minute is a satisfactory rate, when a considerable amount of fluid is being injected.

The object of intravenous therapy may be discussed under four general headings: (1) to supply blood and circulating fluid; (2) to combat dehydration of tissue; (3) to produce dehydration, and (4) as an aid to chemotherapy.[13]

INDICATIONS FOR BLOOD TRANSFUSION

Acute Hemorrhage and Surgical Shock.—During the Great War, hemorrhage and surgical shock were serious problems. Physiologists, as a result of intensive experimental investigation, were soon able to aid those treating the patients at the front. Both clinical observation and physiologic studies went to show that, in a well developed case of traumatic shock with or without hemorrhage, there is partial suspension of the circulation associated with an actual decrease in the volume of circulating blood. Further studies soon showed that the diminished blood volume bore a definite relationship to the severity of the patient's condition but not to the actual amount of blood lost by hemorrhage. Observations in a human donor and in experimental animals revealed the fact that even after considerable hemorrhage there is a rapid return to normal of the total plasma volume and cell volume and that untoward symptoms do not develop. If the hemorrhage is more marked, as it may be after a severe wound, the increase in plasma volume is proportionally greater than that of the whole blood, and hence, an associated decrease in the number of erythrocytes and in the percentage of hemoglobin, or anemia, occurs.. In spite of this anemia, such patients often make remarkable recoveries from their wounds. Bazett and others [14] have shown that a percentage of hemoglobin of 40 or even less is sufficient to carry on oxidation with a patient at rest in bed. However, when the loss of blood is excessive, or when there is severe trauma besides the hemorrhage, a shock-like condition follows, which is distinguished by failure of the normal process of rapid restoration of fluid to the vascular system. Whether this disturbance of fluid equilibrium between the tissues and blood vessels is due to increased permeability of the wall of the vessel, to marked decrease of fluid in the tissues or to inability of the tissues to give up water are still debatable questions. Cases of traumatic shock in which ultimate recovery takes place reveal gradual restoration of blood volume and plasma volume. On the other hand, in cases of shock which do not show this increase in plasma volume recovery does not take place. Such facts emphasize the importance of aiding early restoration of plasma in every possible manner. Thus, when there is delay in restoration of plasma, the intravenous injection of blood plasma or of serum would seem to be the most logical therapeutic procedure, and Mann [15] has demonstrated experimentally that such is the case; the transference of serum from patient to patient, however, offers several technical difficulties. Naturally blood transfusion was the procedure of choice, since experience had demonstrated its usefulness in shock and in hemorrhage. In many instances, blood transfusion brings about remarkable recovery. During the war many a wounded soldier owed his life to the timely transfusion of blood. Similarly, early transfusion has been a life-saving measure in acute hemorrhage and shock due to other causes, as operative procedures during and following delivery and ectopic pregnancy. Blood transfusion given late in the development of shock, whether due to hemorrhage or to other causes, may be of no avail. In a later paragraph, the use of artificial solutions as substitutes for blood serum will be discussed.

Secondary Anemia, Certain Infections and Jaundice.—O. H. Robertson,[16] in 1918, demonstrated the value of blood transfusion in anemic, wounded soldiers when a second or third operation was indicated. Many surgeons have shown that a high operative risk in an anemic patient may be definitely improved by a pre-

13. The indications for the intravenous use of antitoxins and vaccines are not included in this paper.

14. Fullerton, Andrew; Dreyer, Georges; and Bazett, H. C.: Observations on Direct Transfusion of Blood, with a Description of a Simple Method, Lancet **1**: 715-719 (May 12) 1917; Reports of the Special Investigation Committee on Surgical Shock and Allied Conditions, numbers 1-7, Special Report Series 25, Wound Shock and Hemorrhage, Medical Research Committee, Oxford University Press, 1919.

15. Mann, F. C.: The Treatment of the Condition of Low Blood Pressure Which Follows the Exposure of the Abdominal Viscera, Am. J. Physiol. **49**: 137-138, 1919.

16. Footnote 14, second reference.

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operative transfusion.[17] Chronic secondary anemia may often respond to a transfusion. The added blood seemingly acts beneficially by the stimulation of new blood cell formation. Aural surgeons recommend and note beneficial results from blood transfusion in cases of severe mastoiditis, even when lateral sinus thrombosis and septicemia have occurred. General oozing during an operation may be controlled by a transfusion, and this is particularly true of jaundiced patients. Preoperative and postoperative transfusions are important therapeutic measures in combating hemorrhage when jaundice is present. The injected blood decreases the coagulation time in many of these cases.

Certain Toxic Conditions.—Transfusion long has been advised and carried out in various toxic conditions, but striking, beneficial results have been lacking. Removal of blood from the patient with restoration of the erythrocytes in solution of sodium chloride, or withdrawal of plasma, was suggested from experimental results by Abel, Rowntree and Turner.[18] So-called exsanguination, followed by transfusion, has been demonstrated by L. B. Robertson[19] to be a practical and beneficial procedure in severe toxemia of childhood, particularly in the toxemia associated with large superficial burns.

THE USE OF SOLUTIONS OF GELATIN AND ACACIA IN ACUTE HEMORRHAGE AND SURGICAL SHOCK

The importance of restoring plasma volume in conditions of acute hemorrhage and surgical shock has been emphasized. Physiologic solution of sodium chloride serves to restore volume temporarily, but it rapidly leaves the circulation, and its inadequacy in the treatment of hemorrhage and shock has been generally admitted. Goltz,[20] in 1864, was convinced from observations on bled animals that the fatal ending was due to stagnation of the fluid in the circulation, and suggested that the intravenous injection of a protein solution should be an effective restorative. Czerny,[21] in 1894, studied the effects produced in the blood by the injection of solutions of protein, gelatin and acacia in normal experimental animals. He noted that considerable amounts could be given without apparent injury. Hogan,[22] in 1915, introduced a 2.5 per cent solution of gelatin and sodium chloride for this purpose and treated several cases of severe shock, with excellent results in some cases. Bayliss,[23] in 1916, demonstrated the efficacy of solutions of acacia in restoring the lowered blood pressure produced in cats by severe hemorrhage. Rous and Wilson[24] in 1918 obtained similar results in rabbits. Bayliss pointed out that acacia was a more satisfactory colloid than gelatin for this purpose. He[25] recommended for traumatic shock a trial of a sodium chloride solution containing acacia, 6 per cent, and in 1917 (published in 1918) this was carried out in several cases, with beneficial results. These results with Bayliss' solution were similar in many respects to those obtained by Hogan with gelatin. In 1918, while working at a shock center in the British Army in France, I[26] observed several striking recoveries from severe traumatic shock and hemorrhage following single or repeated injections of from 700 to 1,000 cc. of a 6 per cent solution of acacia. Its action, when successful, seemed to be due to restoration of plasma volume. Since the war, similar reports of satisfactory results with this solution have been made by Watson[27] and Masson,[28] both emphasizing its satisfactory use in cases of severe uterine hemorrhage. Erlanger and Gasser,[29] in 1919, employed a 25 per cent solution of acacia in an 18 per cent solution of dextrose with some success in traumatic shock in experimental animals and human beings. Similar results were obtained with a solution of dextrose and acacia by Farrar[30] and Coburn.[31] Huffman[32] of the Mayo Foundation reported a series of 300 cases of various types of shock in which a 6 per cent solution of acacia was injected with beneficial results in many instances. As with blood transfusion, acacia may fail to bring about recovery. Certain preparations of acacia undoubtedly are toxic, as shown by Hanzlik and Karsner,[33] and Kruse.[34] On the other hand, pure nontoxic acacia can be procured and a 6 per cent solution can be made up satisfactorily. Such a solution was prepared by Telfer[16] at Boulogne in 1918. In Huffman's 300 cases there were no demonstrable toxic effects. The exact mode of action of acacia in restoring fluid to the circulation is not clearly understood. Bayliss stressed the possibility of its increasing the viscosity and osmotic pressure of the blood. Studies of the blood of experimental animals and of patients who have received acacia have thus far failed to reveal a satisfactory explanation for its beneficial effects. New knowledge as to the action of colloids, it is hoped, may unravel some of the physiologic problems involved in the beneficial effects of acacia when injected into a failing circulation. From clinical results so far obtained, solution of acacia, given intravenously, appears to be a valuable therapeutic agent in the treatment of acute hemorrhage and shock.

INTRAVENOUS THERAPY IN DEHYDRATION

The significance of loss of fluid from the blood and tissues was first recognized a hundred years ago in cases of Asiatic cholera, as has been mentioned. It is now known that dehydration may result from a deficient intake of fluid, from excessive loss of fluid from the bowel, kidneys or skin, or from a combination of these factors. Dehydration is an important factor in Asiatic cholera, bacillary dysentery, the acute anhydremia of infants, upper intestinal obstruction exempli-

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18. Abel, J. J.; Rowntree, L. G., and Turner, B. B.: Plasma Removal with Return of Corpuscles (Plasmaphaeresis), J. Pharm. & Exper. Therap. **5:** 625-641, 1913-1914.
19. Robertson, L. B.: Exsanguination-Transfusion: A New Therapeutic Measure in the Treatment of Severe Toxemias, Arch. Surg. **9:** 1-15 (July) 1924.
20. Goltz, F.: Ueber den Tonus der Gefässe und seine Bedeutung für die Blutbewegung, Arch. f. path. Anat. **29:** 394-432, 1864.
21. Czerny, Adalbert: Versuche über Bluteindickung und ihre Folgen, Arch. f. exper. Path. u. Pharmakol. **34:** 268-280, 1894.
22. Hogan, J. J.: The Intravenous Use of Colloidal (Gelatin) Solutions in Shock, J. A. M. A. **64** 721-726 (Feb. 27) 1915.
23. Bayliss, W. M.: Methods of Raising a Low Arterial Pressure, Proc. Roy. Soc. London **89:** 380-393, 1916-1917.
24. Rous, Peyton; and Wilson, G. W.: Fluid Substitutes for Transfusion After Hemorrhage, J. A. M. A. **70:** 219-222 (Jan. 26) 1918.
25. Bayliss, W. M.: Intravenous Injection in Wound Shock, Brit. M. J. **1:** 553-556 (May 18) 1918.
26. Reports of the Special Investigation Committee on Surgical Shock and Allied Conditions, Report 27: IX. Blood Volume Changes in Wound Shock and Primary Hemorrhage, Medical Research Committee, by N. M. Keith, Oxford University Press, 1919.
27. Watson, B. P.: Personal communication to the author.
28. Masson, J. C.: Total Versus Subtotal Abdominal Hysterectomy, Am. J. Obst. & Gynec. **14:** 486-492 (Oct.) 1927.
29. Erlanger, Joseph; and Gasser, H. S.: Hypertonic Gum Acacia and Glucose in the Treatment of Secondary Traumatic Shock, Ann. Surg. **69:** 389-421 (April) 1919.
30. Farrar, Lilian K. P.: Acidosis in Operative Surgery, Surg. Gynec. Obst. **32:** 328-339 (April) 1921.
31. Coburn, R. C.: Blood Pressure in Operative Surgery and General Anesthesia, J. A. M. A. **82:** 1748-1750 (May 31) 1924.
32. Huffman, L. D.: Solution of Acacia and Sodium Chloride in Hemorrhage and Shock: Effects of Intravenous Administration, J. A. M. A., to be published.
33. Hanzlik, P. J., and Karsner, H. T.: Anaphylactoid Phenomena from the Intravenous Administration of Various Colloids, Arsenicals and Other Agents, J. Pharmacol. & Exper. Therap. **14:** 379 (Jan.) 1920.
34. Kruse, T. K.: The Pharmacology of Acacia, Am. J. Physiol. **49:** 137, 1919-1920.

fied by pyloric obstruction due to chronic duodenal ulcer, pernicious vomiting of pregnancy, obstructive jaundice with vomiting, uremia and diabetic coma. In chronic asthenic uremia the previous long continued polyuria, as well as the patient's inability to retain fluid in the stomach, have combined to produce distinct dehydration. Frequently, in any of these conditions, it may be difficult and even not practical to introduce fluid either by the gastro-intestinal tract or subcutaneously. Rapid restoration to the tissues of the needed fluid can now be safely carried out by the intravenous injection of solutions of sodium chloride or dextrose, or of a solution containing both sodium chloride and dextrose. In my experience, as much as 3,000 cc. of these solutions may be given daily with absolute safety provided the special precautions which have been mentioned are adhered to. One thousand cubic centimeters, administered in from twenty-five to thirty minutes, seems sufficient for a single injection. One per cent solution of sodium chloride or 10 per cent solution of dextrose, singly or combined, are satisfactory for intravenous medication as a routine in dehydration states. Too much physiologic solution of sodium chloride may cause edema. Rogers [35] prefers a slightly hypertonic alkaline sodium chloride solution in the severe dehydration of cholera. If there has been inability to take food, I believe the calories supplied by the injection of dextrose are helpful. If oliguria or anuria is present, a 20 per cent solution of dextrose may increase the urinary excretion. When definite acidosis is present in diabetic or uremic coma, 500 cc. of a 5 per cent solution of sodium bicarbonate may be given with benefit. The results of such intravenous therapy in any of the states attended by dehydration that are mentioned may be startling. I have seen: (1) patients with chronic glomerulonephritis exhibiting all the features of terminal uremia treated thoroughly with these intravenous solutions and make a remarkable temporary recovery;[36] (2) patients with chronic pyelonephritis, with uremia due to prostatic obstruction, recover rapidly to undergo later successful prostatectomy; (3) patients with marked duodenal obstruction or obstructive jaundice restored from a very toxic and serious condition both before and after surgical treatment, and (4) patients with pernicious vomiting of pregnancy [37] and infants with severe anhydremia who have been literally tided over a serious crisis. These accomplishments closely parallel those obtained by Latta,[4] Wall,[38] Rogers [35] and others in cases of Asiatic cholera, and those obtained by Rogers, Graham [39] and others in cases of dehydration from bacillary dysentery. Foster [40] has especially stressed the dehydration that attends diabetic coma and the importance of fluid in the treatment of it. Underhill [41] and his co-workers have shown that dehydration may result from large superficial burns and that intravenous medication has aided in recovery.

35. Rogers, Leonard: Bowel Diseases in the Tropics: Cholera, Dysenteries, Liver Abscess and Sprue, New York, Oxford University Press, 1921.

36. Bannick, E. G.: Effect of Intravenous Treatment in Uremia, M. Clin. North America **10**: 635-646 (Nov.) 1926.

37. Keith, N. M.: The Treatment of a Case of Hyperemesis of Pregnancy, Proc. Staff Meetings of Mayo Clinic **3**: 451-452, 1928.

38. Wall, A. J.: Asiatic Cholera: Its History, Pathology and Modern Treatment, London, H. K. Lewis, 1893.

39. Graham, Duncan: Some Points in the Diagnosis and Treatment of Dysentery Occurring in the British Salonika Force, Lancet **1**: 51-55 (Jan. 12) 1918.

40. Foster, N. B.: The Treatment of Diabetic Coma with Insulin, Tr. A. Am. Phys. **38**: 382-393, 1923.

41. Underhill, F. P.; Carrington, G. L.; Kapsinow, Robert; and Pack, G. T.: Blood Concentration Changes in Extensive Superficial Burns, and Their Significance for Systemic Treatment, Arch. Int. Med. **32**: 31-49 (July) 1923.

The significance of dehydration in these cases is shown by the fact that similar effects can be produced experimentally. Woodyatt,[42] and Woodyatt, Sansum and Wilder [43] emphasized the experimental dehydration resulting from timed injections of solutions of dextrose. By prolonged intravenous injection of hypertonic solutions of sugar, I [44] have produced an excessive excretion of urine with a loss in body weight of from 7 to 10 per cent and a decrease in the volume of circulating blood. These experiments were instructive because the dehydration was not accompanied by toxic or infectious factors and because it could be remedied so easily if an adequate intake of water was given within a few hours of the onset of dehydration. The rapid restoration of the circulation on the administration of water was strikingly similar to Latta's description in 1832 of the effect of intravenous injections of sodium chloride solution in cases of cholera. Such experiments emphasize the importance of this treatment in all conditions in which dehydration is present.

INTRAVENOUS THERAPY IN EDEMA

The experiments cited point the way to the therapeutic production of dehydration in the treatment of edema. Hertel,[45] in 1915, and Sansum [46] in 1917 demonstrated a reduction in the intra-ocular tension in glaucoma following the intravenous injection of hypertonic solution of sodium chloride and of dextrose. Weed and McKibben,[47] in 1919, demonstrated that hypertonic solutions of sodium chloride, sodium sulphate or dextrose, given intravenously to experimental animals, caused reduction in pressure of cerebrospinal fluid and decrease in the size of the brain. Cushing and Foley [48] confirmed these observations and obtained similar effects, both in animals and in patients with increased intracranial pressure, by the introduction of hypertonic solutions into the gastro-intestinal tract. Hypertonic solutions given by either route have since proved to be of definite clinical value for the reduction of intracranial pressure and intracerebral edema.[49] They are employed in cases of injury to the head, of tumor of the brain, and of meningitis.[50] This treatment has not only reduced the number of operations necessary for injuries to the head but has been beneficial both in preoperative and in postoperative care when surgical operation on the brain is indicated. If rapid action is needed, from 50 to 100 cc. of a 15 to 30 per cent solution of sodium chloride or from 100 to 500 cc. of a 20 per cent solution of dextrose is given by vein in single or repeated doses. Downman [51] reported a

42. Woodyatt, R. T.: Studies on Intermediate Carbohydrate Metabolism, Harvey Lecture, series II, 1915-1916, pp. 326-345.

43. Woodyatt, R. T.; Sansum, W. D., and Wilder, R. M.: Prolonged and Accurately Timed Intravenous Injections of Sugar, J. A. M. A. **65**: 2067-2070 (Dec. 11) 1915.

44. Keith, N. M.: Experimental Dehydration: Changes in Blood Composition and Body Temperature, Am. J. Physiol. **67**: 80-96 (March) 1924.

45. Hertel, E.: Klinische Untersuchungen über die Abhängigkeit des Augendrucks von der Blutbeschaffenheit, Arch. f. Ophth. **90**: 309-321, 1915.

46. Sansum, W. D.: Rapid Reduction of Intra-Ocular Tension in Glaucoma by Timed Intravenous Glucose Injections, J. A. M. A. **68**: 1885-1888 (Jan. 23) 1917.

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48. Cushing, Harvey; and Foley, F. E. B.: Alterations of Intracranial Tension by Salt Solutions in the Alimentary Canal, Proc. Soc. Exper. Biol. & Med. **17**: 217-218, 1920.

49. Fay, Temple: The Administration of Hypertonic Salt Solutions for the Relief of Intracranial Pressure, J. A. M. A. **80**: 1445-1448 (May 19) 1923.

50. Haden, R. L.: Therapeutic Application of the Alteration of Brain Volume by the Intravenous Injection of Glucose, J. A. M. A. **73**: 983-984 (Sept. 27) 1919.

51. Dowman, C. E.: Management of Head Injuries with Real or Potential Brain Damage, J. A. M. A. **79**: 2212-2214 (Dec. 30) 1922.

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favorable result in a patient with injury to the head and who was in coma, after six intravenous injections of a 30 per cent solution of sodium chloride. Such results suggest that even better results might be obtained from continuous, accurately timed, slow injections. Blackfan and Hamilton [52] observed temporary recovery from the alarming symptoms of uremia in children following the intravenous use of a 1 per cent solution of magnesium sulphate. This effect, in their opinion, was due to reduction of cerebral edema. These measures, although successful in the treatment of cerebral edema, have not been applied to the treatment of generalized edema and ascites.

Myxedema has been successfully treated with thyroxin given by vein. This experimental procedure is seldom necessary, since desiccated thyroid is usually absorbed satisfactorily from the intestines. Saxl and Heilig,[53] in 1920, first observed the diuretic action of the organic compound of mercury merbaphen (novasurol). Since then merbaphen, or the less toxic compound salyrgan, has been of distinct value in the treatment of many types of edema. I have shown that their dehydrating effect can be augmented by the previous ingestion of certain acid-producing salts, such as calcium chloride, ammonium chloride and ammonium nitrate.[54] Merbaphen or salyrgan [55] is administered most satisfactorily by vein. When given by mouth, the diuretic action is uncertain. If injected into the skin or deeply into a muscle, pain and even necrosis may occur. The use of salyrgan is an example of chemotherapy rather than of dehydration, such as is produced by the injection of hypertonic solutions.

INTRAVENOUS MEDICATION IN RELATION TO CHEMOTHERAPY

The intravenous use of a large number of drugs and dyes has been reported by many workers. Those that have received the most attention are discussed in the following paragraphs.

Modern chemotherapy was introduced into practical therapeutics because certain drugs had shown curative properties in the treatment of experimental protozoan infections. In studies carried out in laboratories the drugs investigated frequently were injected intravenously, and this mode of administration has since been adapted to the treatment of disease in human beings. The use of organic compounds of arsenic dates from the demonstration by Thomas,[56] in 1905, of the therapeutic effect of atoxyl in experimental trypanosomiasis. This led Ehrlich to study the chemical nature of atoxyl; by using this substance as a corner stone, he discovered arsphenamine in 1910. The intravenous treatment of syphilis in man began with the employment of arsphenamine, which is still an important antisyphilitic remedy, and extremely useful in such other spirochetal infections as yaws and relapsing fever. It is of interest to point out that the arsenical compound tryparsamide, prepared by Jacobs and Heidelberger,[57] is much less effective in the treatment of tertiary syphilis than is arsphenamine; yet Lorenz and Loevenhart [58] and their co-workers, in 1923, demonstrated that tryparsamide produces strikingly beneficial effects in neurosyphilis and dementia paralytica. Lorenz [59] has shown that many patients have continued to be in good physical health and have been mentally efficient since the treatment began from five to six years before, a remarkable result if one stops to consider the previous outlook of therapy in neurosyphilis. Their work also emphasizes the possibilities of carefully controlled intravenous therapy. The actual amount of tryparsamide injected varied from 48 to 1,500 Gm. for a person. One patient received 160 Gm. into a single vein during a period of four months, without local irritation. Tryparsamide was first used in the treatment of trypanosomiasis in man by Pearce,[60] in 1921. The drug was found to have a marked, immediate trypanocidal effect, and cases have been reported in which the patient was cured after being under close observation for a period of several years. This beneficial action of tryparsamide in neurosyphilis and in trypanosomiasis in man is attributed to its ready solubility and marked power of penetrating easily into the tissues. Two other substances, Bayer 205 and Fourneau 309, often given by vein, have been found to be effective in trypanosomiasis in man.[61] The formula of the former has not been published, but the substance is thought to be a salt of a complex sulphonic acid. Fourneau's [62] compound is the result of chemical investigation of a series of similar substances. Both drugs have a long, persistent, trypanocidal action and patients treated early in the course of this dread disease have been cured. The use of tryparsamide, Bayer 205, and Fourneau 309, offers possibilities for the eventual conquest of trypanosomiasis. Antimony, given intravenously in the form of antimony and potassium tartrate, and other compounds, sometimes has proved effective in the treatment of different types of leishmaniasis.

Ehrlich's observation on the selective action of certain dyes suggested to him the possibility of finding a dyestuff which would selectively fix itself to the parasite and poison its protoplasm without injuring that of the host. From this aspect of chemotherapeusis, certain dyes have been injected intravenously for the treatment of septicemia: [63] gentian violet, of the triphenyl methane series; mercurochrome-220 soluble (the disodium salt of 2:7-dibromo-4-hydroxymercurifluorescein), and acriflavine hydrochloride, belonging to the group of acridine dyes. Churchman,[64] in 1912 and in 1925, showed that gentian violet has selective effects on certain bacteria. Since then, it has been used in various types of septicemia, particularly those due to the staphylococcus, hemolytic streptococci and the green-producing streptococcus. Beneficial action and even recoveries have been observed, but the results generally

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have been variable. Such results were to be expected because the cases in which treatment was carried out differed widely in the severity of the infection and the patients differed much in general resistance. The dose is 5 mg. for each kilogram of body weight and the drug is administered in a solution of from 0.25 to 0.5 per cent.

Mercurochrome-220 soluble was first used intravenously by Piper,[65] in 1922, and later by Young and Hill,[66] in 1924. They reported good results in sepsis due to hemolytic streptococci, in erysipelas and in perinephric infections. Others have found mercurochrome-220 soluble of benefit in pyelonephritis. The usual intravenous dose is 5 mg. for each kilogram of body weight in a 1 per cent, or even a more dilute, solution. Toxic effects, such as a rise in temperature, vomiting and diarrhea, occur frequently. After these reactions subside there is often a remission of temperature and other symptoms. The use of acriflavine hydrochloride in general septic conditions was suggested by its high antiseptic and bactericidal action in vitro. Intravenous injections have been given in a few cases of septicemia and epidemic encephalitis, but the actual results are difficult to evaluate. The dose is 5 mg. for each kilogram of body weight given in 1 per cent solution, or in more dilute solution. Intravenous therapy with dyes is still an experimental procedure but is worthy of further trial in selected cases. The ideal dyes or drugs for massive sterilization of tissue have still to be discovered.

Two drugs which have very important and useful therapeutic actions are quinine hydrochloride and digitalis. Both are best given by mouth. There are certain limited indications for their intravenous use. Maxcy [67] lately has reviewed the evidence pro and con for the intravenous injection of quinine hydrochloride in malaria. It is indicated in the treatment of three conditions: (1) in cases in which there is lack of absorption of the tablets or capsules when given by mouth; (2) in pernicious malaria with severe gastrointestinal symptoms, and (3) in the delirium or coma due to cerebral forms of the estivo-autumnal infection. The dose administered is 0.65 Gm. (10 grains) of quinine hydrochloride dissolved in 100 cc. of an 0.85 per cent solution of sodium chloride. The needle should be inserted definitely in the vein, as necrosis in the surrounding tissues may follow leakage. It should be injected slowly, particularly when the patients present symptoms of collapse. One injection is usually sufficient, but if necessary it can be repeated the following day.

Intravenous injection of digitalis or of strophanthin is indicated when administration by mouth, by rectum or under the skin cannot be carried out, or when effects must be induced within a few hours. This method was introduced by Kottmann [68] and by Fraenkel and Schwartz [69] in 1905 and 1907. The amount given must be carefully computed, as the margin of safety between the therapeutic and toxic dose is relatively small and a toxic dose is attended with danger.[70] The full dose is given only if digitalis has not been taken in any form during the preceding two weeks. The dose for strophanthin is 0.5 mg., and, if needed, further smaller amounts may be given every hour up to a total of 1 mg. The therapeutic dose of aqueous solutions of digitalis (digifolin,[71] digitan and digalen) for intravenous use has been found to be from 6 to 11 cc.[72] I prefer these preparations to strophanthin. If the patient has been receiving digitalis within a few days, this dose should be reduced to from 2 to 4 cc., and repeated in six hours if necessary.

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COMMENT

Two hundred and sixty years ago, Pepys in his famous diary referred to intravenous therapy as an experimental curiosity. With the subsequent application of scientific methods to therapeutics, it has since become a recognized procedure in the practice of medicine. To this development physician, surgeon, physiologist and pharmacologist have each made important contributions. The intravenous method should not replace the older and simpler methods of administration of drugs but should be substituted only when the latter routes are inadequate or markedly disturbed by disease.

Exact technic is essential. Intravenous therapy has assumed an important place in the treatment of specific pathologic conditions, and the indications for its use vary with knowledge of the underlying physiologic disturbance and with the available methods for treatment.

Repeated transfusion was the best available remedy in pernicious anemia until the discovery by Minot of the efficacy of the feeding of liver; now even a single transfusion is rarely given in this disease. The relative merit of transfusion of blood or of infusion of a colloid solution in the treatment of hemorrhage and shock is still debatable. The importance of increasing the circulating fluid is generally recognized, but other variable factors must be considered when the agent to be employed is being chosen. Further knowledge of the underlying factors in hemorrhage and surgical shock undoubtedly will lead to better and more logical therapy. The frequent failure of transfusion in severe toxemia has led to a trial of more heroic measures, such as exsanguination and transfusion, which possibly offer a more thorough method for ridding the tissue cells of offending poisons.

In serious states attended by dehydration, immediate intravenous therapy often initiates recovery. On the other hand, the introduction of measures for dehydration for the reduction of either local or general edema has been similarly beneficial. The rapid effect of certain drugs, administered intravenously, on protozoan infections in experimental animals and in man already has led to therapeutic discoveries of practical value. However, the stimulus thus given to studies in chemotherapy has led and will lead again to new vantage points from which the age-long problems of various systemic infections may be successfully attacked.

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THE CLINICAL EVALUATION OF DRUGS*

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Drugs and other curative agents assist in the readjustment or correction of disturbed functions, as in the use of digitalis or of laxatives; in the limitation of the growth of pathogenic organisms within the body, as with quinine, methenamine, emetine or arsphenamine; or by supplying a deficiency in substances necessary to life or growth, such as thyroid substance, insulin or vitamins.

Knowledge of the use of drugs and other remedies in the treatment of disease is the result of centuries of observation and study and is undergoing now, as in the past, a continuous process of revision. Some drugs have reached what seems to be a permanent place in the Pharmacopeia through years of clinical observation; cinchona, digitalis and mercury come to mind. Some, previously misused and discarded, such as antimony, recently have been revived as new methods of use have been devised. The active principles of herbs and drugs long known and used in medicine have been discovered and isolated by appropriate chemical methods. Other drugs equally valuable have been discovered by orderly chemical experiment correlated with studies of disease in experimental animals, with the result that there are arsphenamine and other arsenical preparations for the treatment of syphilis and certain other spirochetal and protozoal infections. Toxicity for the animal body has been decreased and effectiveness in combating disease increased by changes in chemical formulas, as demonstrated first in animals and later, when reasonable safety has been assured, in man. A new drug may be theoretically effective and may even cure animals but still may fail in man by reason of unforseen by-effects which preclude its use. Ethylhydrocupreine is effective against pneumococcal infections in animals, but its effect on the optic nerve requires great caution in its use in lobar pneumonia in man.

The discovery and evaluation of new drugs is thus a complicated process and is concerned successively with chemical theory or logic, animal experiment and, finally, clinical observation. Animal experimentation is conducted with complete controls, and the successful trial of a new drug in man requires equal care in providing comparable control cases. For this reason clinical studies are best carried out when large numbers of cases of a given type are available. Observations on isolated patients or on small numbers of patients usually lack adequate controls, and therefore conclusions drawn from them are likely to be misleading. We too frequently forget the natural history of disease and overlook the normal tendency toward recovery. The more variable the outcome of a disease and the greater the number of factors which influence that outcome, the more difficult becomes the task of evaluating the effect of any drug or method used in its treatment. The clinical judge and jury are apt to be prejudiced. The physician desires above all else the recovery of his patient, and the patient's great desire is to get well. The neglect of complete controls is the chief source of erroneous clinical conclusions.

The physician is urged to try this or that drug irrespective of whether it has genuine merit, is an old remedy dressed up in a new and more suggestive name, or is a partially tested drug which the manufacturers hope to try out and popularize at the same time. Progress in therapy requires open-minded trial of new drugs as they are discovered, but the practitioner may well demand that before he is asked to use a drug in the treatment of his patients he be supplied with well controlled clinical evidence of its value, obtained under circumstances that guarantee the scientific accuracy of the reports.

FADS AND FANCIES IN MEDICINE

In recent years the increase in scientific knowledge, new inventions, greater efficiency in manufacturing, more rapid transportation, and the adjustment of agriculture to climate have revolutionized our dinner tables, our lives and our thought. The almost daily announcement of new discoveries has produced a national state of mind in which we are surprised at nothing and, too frequently, are willing to accept at face value anything presented with the merest semblance of truth.

In 1905 at the Portland session of this association, Dr. Billings opened the campaign against "patent medicine" frauds. Now the profession and the public are much better informed about "patent medicines," but the field of propaganda has been broadened so that today all manner of fads and fancies are paraded as alleged cures or urged as prophylactics of illness on an apprehensive and susceptible public. Special articles of food which may be beneficial in correcting some minor ailment are offered as effective for every one. Styles in dress call for a decrease of weight, and special diets, quite proper when employed in the obese under medical supervision, are undertaken by young women under the direction of the radio announcer, often to their lasting harm. The advances in the science of nutrition and the excellent clinical results in those diseases which can be relieved or improved by suitable diets, such as diabetes, nephritis, gout, or disease of the stomach or bowel, have inclined the public, as well as some physicians, to a blind faith in any regulation of food intake presented under the title of a diet. Frequently I am consulted by patients who have been advised to eliminate carbohydrates and then fats, and finally to reduce their protein intake. There is very little left. Diet lists are becoming more and more complicated and I often wonder whether common sense is not frequently replaced by faddism.

The discovery of vitamins has been of tremendous importance in the understanding and cure of deficiency diseases. We often forget, however, the circumstances under which these dietary deficiencies produce symptoms requiring correction. It is obviously unnecessary to feed a special preparation of antiscorbutic vitamin to a healthy person who is already receiving an abundance of fresh fruits and vegetables, or to give extracts of rice polishings to prevent beriberi. When the diet is specially restricted by reason of some medical requirement, it is conceivable that the giving of substances rich in some vitamin may be desirable, but such instances are now rare. Some of us may remember the appearance of infantile scurvy following the introduction of specially prepared diets for babies. The diversified diet of the average home probably affords all vitamins necessary to health, and there is no evidence that the giving of an excess of vitamins is beneficial. A glass of milk is more effective and less

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expensive than a dose of vitamins. Despite full page advertisements including photographs, the value of yeast for many of the conditions for which it is recommended is problematic. There is a wide gap between scientific demonstration and commercial exploitation.

Then there is the "eat-more" propaganda. The power of suggestion and advertising, developed to meet wartime exigencies, has been utilized to promote the consumption of such familiar products as oranges, lemons, bananas, wheat and apples and other worthy articles of food which from time to time need a greater market outlet. Medically we can approve of each of these foods as useful, but the stressing of this approval as a mask for what is in reality a commercial purpose deludes the public as to the facts and may lead to unfortunate results.

It has been erroneously assumed because thyroid substance is effective when given by mouth that preparations of other glands will survive the processes of digestion, be absorbed, and assist by substitution in the correction of glandular deficiencies. The fallacy of this assumption is well recognized in the case of insulin and epinephrine, but other glandular products, some of which have no well supported claim to value, however given, continue to be administered by mouth on the authority of poorly controlled clinical evidence, supported by mistaken tradition. Still less favorable comment may be made on the polyglandular mixtures, glibly advised by manufacturers, which usually owe any effects they may have to the varying amounts of thyroid substance which they customarily contain. These mixtures are reminiscent of the concoctions of the middle ages whose value had already come to be questioned by physicians of the sixteenth century.

THERAPEUTIC OBJECTIVES

The first objective in therapeutics is to hold fast to remedies of substantiated and proved value, and to strive to understand and use them better. The information concerning the sources, preparations, uses and doses of drugs, collected in the United States Pharmacopeia, is revised every ten years by the Pharmacopeial Convention, with the omission of those drugs which have been shown by experience to be of relatively little use and the inclusion of new drugs whose value has been established.

The second objective, the discovery and evaluation of new drugs and methods of treatment, presents a difficult problem whose solution often requires the effort of many physicians. The final verdict must come from the observation of clinical results, and often can be arrived at only after a period of long and careful study, the duration of which depends largely on the definiteness of effect of the remedy. The clinical value of insulin was established within a year after its discovery. The value of diphtheria antitoxin was indicated relatively soon after discovery, but its complete acceptance required time for the accumulation of statistics. Other remedies for disease, from which much was expected from preliminary reports, sometimes have been studied for years and then found ineffective and discarded.

The progressive physician will be alert to secure for his patients the benefit of new discoveries, but he cannot safely allow his hopes to outweigh his judgment. He will pass by those drugs, new or old, which are unpromising and will employ those whose value is supported by well controlled scientific evidence.

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THE CLINICAL VALUE OF SERUMS AND VACCINES *

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The recent survey by Hektoen and Irons concerning the popularity of vaccines indicates that these agents are in disfavor with an overwhelming majority of physicians. However, one has only to compare the catalogue of any prominent drug company of twenty years ago with the most recent catalogue of the same company to realize that the treatment of infectious diseases has been changed from one in which drugs played the most important part to one in which such biologic products as serums and vaccines have assumed a great prominence. A visit to the drug room of the average hospital confirms the idea that vaccines particularly are widely used. In towns of comparatively large size it may be impossible to find a package of type I antipneumococcus serum during the winter, although numerous preparations of vaccines and other so-called antigenic agents are always available.

This condition reflects an attitude on the part of the physician which is due to the lack of uniform teaching regarding the nature of infection, its etiology and the means by which an infectious disease may be neutralized. The medical student hears contradictory evidence in many fields of bacteriology. At the same time the information which he receives concerning antigens and antibodies is so rigidly definite that he leans to a belief in specificity and is inclined to accept as specific the various agents for immunization, however loosely supported they may be by the uncontrolled observations of clinicians or the claims of salesmen.

The outstanding success of smallpox vaccine, the dramatic discovery of the Pasteur treatment and the apparent usefulness of typhoid vaccine and of vaccination with diphtheria toxin-antitoxin mixtures have led investigators to the hope and to a large extent to the belief that similar success may be obtained in the field of other infectious diseases. The manifest failure of most of the attempts to produce effective vaccines and serums emphasizes the fact that there are many features of an infectious disease that are still unsolved. If we desire to form a standard by which the value of serums and vaccines may be determined, it is necessary to emphasize the importance of studying the nature of the infection and the factors that determine the production of symptoms.

When the human body receives an infecting organism, the effects that follow the contact between these two forms of life are numerous and devious in operation. Bacteria have different ways of living in the human body, some by the elaboration of soluble toxins and others by maintaining a purely parasitic existence. An example of the first type of activity is infection by the diphtheria bacillus. An excellent example of the second type of activity is the infection of a heart valve by a nonhemolytic streptococcus. Some bacteria maintain both types of activity; examples of these are gas bacilli and hemolytic streptococci. To use the words of Theobald Smith, "Those bacteria which act only through their toxins are most easily kept in check by immunization." Those bacteria which act purely as

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parasites are by far the most difficult to treat by means of specific immunization. Some bacteria, such as the hemolytic streptococci, may display different forms of activity in different human conditions. In some cases these organisms seem to affect the human body chiefly through the formation of toxin and in such cases, as scarlet fever, the use of specific antitoxin has had considerable success. The prevention of the parasitic activity of hemolytic streptococci as well as pneumococci remains an important problem for further research. The factors which determine the invasion of the blood stream in cases of lobar pneumonia and wound infection are not yet recognized and form the chief elements which must be understood before specific treatment of these diseases can be widely successful.

When the human body is in contact with bacteria, in the sense that an infection is present, this very fact leads to a change in the host which renders its behavior peculiar when later and further contact with the same bacteria is continued. This changed condition has been called by the rather unsatisfactory name of allergy. That such an alteration in the behavior of the host is common in many different kinds of infection is apparent when one considers the peculiar way in which symptoms develop in many infectious diseases. This factor of allergy has been emphasized by Swift and his co-workers as important in the pathogenesis of acute rheumatic fever. It seems most probable that the same type of mechanism operates in the production of many cases of lobar pneumonia which have been preceded by upper respiratory infection and in cases of gonorrheal rheumatism.

There is obviously no plan by which the use of antigens or antibodies, that is, of vaccines or serums, can serve for the neutralization of this condition of allergy. There is experimental evidence that sodium salicylate interferes with the establishment of allergy, and if this experimental fact has any clinical significance it would be that upper respiratory infections likely to be followed by lobar pneumonia or acute rheumatic fever should be adequately treated with sodium salicylate.

The first fact which must be established before the question of treatment with any specific agent can be contemplated is the etiology of the given infection. Strange to say, many of the vaccines employed are chosen without any regard to the etiologic significance of the bacteria making up the vaccine. Concerning many infectious diseases there are sharp differences of opinion with regard to etiology. This is notably true with respect to nonhemolytic streptococci. According to some investigators these organisms are directly responsible for numerous different and extremely important diseases. According to other investigators the evidence on which these statements are based simply proves the ubiquity of nonhemolytic streptococci but in no way indicates such a manifold pathogenicity.

The practitioner finds himself unable to criticize the technical results of research or the arguments of investigators. He is more inclined to accept that opinion which offers him a definite etiology for every infectious disease. This uncertainty with regard to etiology has led to the manufacture of many vaccines and a few serums which are used from time to time, but which for the most part have not become acceptable in clinical practice. Even when etiology can be definitely established, as it certainly has been in the case of numerous infectious diseases, it does not follow that the disease can be effectively neutralized by the injection of more antigen or by the injection of antitoxic serum unless the manner in which the infecting organism affects the human body supports such therapy. As a matter of fact there is very little overuse of serums in clinical practice. Antitoxic serums have so well proved their value that the use of antidiphtheria serum, antimeningococcic serum, antitetanus serum, antiscarlet fever serum, antipneumococcic serum (type I) and convalescent serum for infantile paralysis is widespread. There is only one serum commonly used for which clinical experience furnishes no support. This is the so-called antistreptococcus serum. The experience at St. Mary's Hospital during the past five years in the treatment of fifty-five cases of infection with hemolytic streptococcus in which bacteremia occurred corroborates the evidence of others that the employment of this agent is without useful beneficial effect.

On the other hand, there is too commonly a tendency to neglect the value of type I pneumococcus serum. Amazingly few hospitals maintain and employ the agencies for learning the type of pneumonia which is treated each year, and this is largely due to indifference on the part of clinicians to the established value of this serum. Lobar pneumonia is such an important disease that every effort should be made to reduce the mortality. The establishing of proper laboratory facilities for determining the types of pneumonia and the intelligent use of antipneumococcus serum in type I cases will surely accomplish the result of lowering the mortality of this disease.

In approaching the question of the value of the numerous vaccines that are used, it is advisable to select only a few about which the greatest amount of discussion revolves. It is necessary to consider whether vaccines are useful in the treatment of lobar pneumonia and hemolytic streptococcus infections and also whether the so-called nonspecific shock vaccines are useful enough to justify their continued employment. Vaccines are often furnished under trade names and so there are a variety of products on the market which are not always called vaccines, even though they may be regarded as antigenic substances. They are presumably given on the theory that the resistance to an acute infection may be heightened by the injection of these materials either under the skin or into the blood stream. The correctness of this theory is highly questionable and the practical results obtained with the use of these antigenic substances in acute infections such as lobar pneumonia do not justify their continued employment. It is true that there are examples of peculiar shortening of the course of lobar pneumonia following the injection of some material which disturbs the patient to the extent of producing chills and a higher temperature. These results were observed not only when so-called specific antigenic substances were injected but also when nonspecific substances such as horse serum were followed by this febrile disturbance. No explanation can be offered on the basis of present information for these clinical phenomena. Their occurrence is uncertain and in no way connected with specific agencies. These occasional experiences do not justify the use of antigenic substances for the treatment of lobar pneumonia. In the field of hemolytic streptococcus infection, the same arguments apply; namely, that there is very little theoretical justification for using these products as antigens and practically no well controlled clinical observations to support their further manufacture.

There are still numerous infections concerning whose etiology dispute is prevalent. For many of these infections vaccine treatment has been devised by the original investigators, and for others vaccines are furnished by the manufacturers without much foundation in experimental facts. It is impossible to consider in detail all these instances, but when one considers the number of vaccines about which there is little or no dispute one finds oneself with few vaccines left, except those for smallpox, rabies, typhoid and diphtheria. This attitude need not be regarded as nihilistic. If the stock of vaccines other than those just enumerated was suddenly depleted, the average practitioner would be confronted with the fact that there is need for painstaking study of those infections which are now fatuously treated with vaccine. He would be more interested in the work of those investigators who toil in the field of experimental medicine and obtain helpful results only rarely.

Concerning the use of nonspecific vaccines, it can be said that definite clinical effects are produced frequently which lead both the patient and the physician to feel that some good has been accomplished. It has been shown, for example, that such nonspecific reactions may temporarily suppress a bacteremia, but the literature fails to indicate that the use of nonspecific products has produced permanently beneficial effects. These nonspecific reactions are still widely employed in the treatment of conditions such as chronic rheumatism. The continued use of these products need not be discouraged altogether. We should always keep in mind the limitations attending such use.

To the student who is interested in theoretical considerations underlying immunization, a paper by Theobald Smith, published in the Transactions of the Congress of American Physicians and Surgeons in 1916, will be an inspiration.

The work done by numerous later investigators has gradually improved the information concerning certain special infections such as scarlet fever, erysipelas and acute rheumatic fever, and some progress has been made in the treatment of these conditions. It is far better to await the results of further studies by those whose lives are devoted to investigation of this type than to plunge madly into the promiscuous use of vaccines and serums.

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[EDITORIAL NOTE.—This paper, together with the papers of Dr. Keith and Dr. Irons which precede it, and the papers of Dr. Stoner, Drs. Puckner and Leech, and Dr. Leake, to appear next week, constitute a symposium on intravenous medication, new drugs and the clinical value of drugs, serums and vaccines.]

The Rural Practitioner.—I do not believe you can show me a physician who has practiced medicine in a rural district for five years or longer who will tell me, of the vast knowledge that he now possesses, that he gained the major portion of it in any school or hospital. No doubt he considered himself a very fair doctor when he essayed forth into the realms of country practice, but I will wager that only a few months caused a very thorough revision of the estimate, if he was fair to himself. Not so the man who locates in a city, because, if he strikes a snag, he has an abundance of efficient, experienced men whom he can rely on early in the progress of a case. He is able to limit his work narrowly even if he undertakes general practice. But the man out in the country, who has to depend on his own efforts, has to settle his problems alone and ofttimes battle the Grim Reaper unprepared, unassisted and underpaid.—Stewart, D. B.: A Rural Internship, *Virginia M. Monthly*, September, 1929.

HYPOGLYCEMIA AND THE CONVULSIONS OF EARLY LIFE

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A few years ago Josephs[1] made a suggestive contribution to the subject of a possible connection between hypoglycemia and ordinary eclamptic convulsions in infancy and childhood. A series of cases was reported in which convulsions developed after a short fasting period often accompanied by fever, and the importance of the fact was stressed that the fasting was of but brief duration. The relationship in some of these cases was presumptive merely, since no test of the blood sugar content was made. In others, however, examination of the blood showed a decided diminution in the sugar content, indicating a close association between this and the occurrence of convulsions. This result, however, still leaves the question unsettled whether the hypoglycemia is the cause, the accompaniment or the result of the convulsions; whether the low blood sugar and the convulsions came from the same cause, or whether the association was a purely accidental one. Only a therapeutic test would bring conclusive proof, and Josephs cautioned against the acceptance of this too readily.

Since the matter appears to be one of great importance, the following cases should be of interest. All the reports are in abstract form, except those of the first two cases, and especially the first, which is given in somewhat more detail. It may be said that the studies to be reported largely confirm the observations of Josephs, at least in most particulars.

REPORT OF CASES

CASE 1.—E. J., a boy, aged 4 months when he first came under observation, had had convulsions at intervals for ten days, with three on the morning of July 1, 1924, when he was brought in a convulsive condition to the Children's Hospital of Philadelphia. He remained lethargic until the next day. The blood calcium and phosphorus were normal. No other convulsions occurred during his stay in the ward.

Jan. 28, 1925, he was returned to the hospital in convulsions and in a semistuporous condition. Two convulsions had occurred on the morning before admission. On the day before he had taken little food. There was some fever while he was in the hospital due to otitis, but no further convulsions occurred.

He was admitted for the third time, July 2, 1926, at the age of 2 years and 4 months. The child woke in the morning apparently with abdominal pain, vomited, and had several stools. He was given camphorated tincture of opium and brought to the hospital in a stuporous condition, possibly the result of the drug. There was no fever on admission. He was much better, July 3.

His fourth admission occurred one month later, August 1. Convulsions began about 7 a. m., followed by repeated vomiting and an increase in the number of stools. After a few hours he was sent to the hospital unconscious, febrile, spastic and with frequent vomiting. Meningitis was thought possible, but later the existence of hypoglycemia was suggested and an examination of the blood sugar showed 20 mg. per hundred cubic centimeters. An intravenous injection of 100 cc. of a 10 per cent solution of dextrose was given. After the first 50 cc. the patient quickly became conscious and asked for milk. The rapidity and completeness of the recovery were surprising. No more convulsions occurred. A dextrose tolerance test was made, August 11, with the following results: Before starvation the blood sugar was 86 mg.; after the night's fasting it was 78 mg.; dextrose was given (1.75 Gm. per kilogram of body

1. Josephs, Hugh: Fasting as a Cause of Convulsions, Am. J. Dis. Child. **31**: 169 (Feb.) 1926.

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weight) and one hour later the blood sugar was 106 mg., two hours later 93 mg., and three hours later 74 mg.

The fifth return of the child was on August 21, a week after his discharge. He had been perfectly well, August 20, but woke the next morning at 7 o'clock screaming, had a convulsion, and vomited several times. He was brought to the hospital in a semiconscious condition without fever. Five hours later he was still unconscious. He was then given 50 cc. of a 10 per cent solution of dextrose intravenously. In a short time he regained consciousness and next day seemed normal. He was now kept on a high sugar diet, but in spite of this the blood sugar, August 27, was only 86 mg. per hundred cubic centimeters.

The sixth admission took place two months later, October 6. The child had been well the day before. Convulsions began at 5:30 a. m. and he was admitted to the hospital at 9:15 a. m. in an unconscious state, afebrile, spastic and vomiting. The blood sugar was 28 mg. per hundred cubic centimeters. He was at once given intravenously 200 cc. of dextrose solution and toward the end of the injection was conscious. The blood sugar thirteen days later was 82 mg.

The seventh entrance to the hospital was on March 2, 1929, the child now being 5 years old and a well developed boy. At 2:30 that morning he woke screaming, became convulsive and vomited. He was brought to the hospital promptly and at 5 a. m. was given intravenously 200 cc. of 10 per cent dextrose solution. The effect was immediate, the convulsion ceasing and consciousness returning. Four hours later the blood sugar was apparently 33 mg. but probably was somewhat higher than this owing to a slight delay before the examination was made. There was no return of the convulsions.

A number of experimental tests were then performed. March 5, the fasting blood sugar was 84 mg.; the child was given 7 mg. of epinephrine and the blood sugar rose in ten minutes to 108 mg. The reaction was severe. March 11, a dextrose tolerance test was made. The fasting blood sugar was 83 mg.; dextrose was given, and after one-half hour the blood sugar was 89 mg.; one hour later it was 109 mg.; two hours later 103 mg.; three hours later 94 mg.; five hours later 84 mg., and seven hours later 78 mg. March 14 a test was made to determine the result of longer fasting combined with exercise. The child was not given breakfast and was made to exercise freely about the ward. The blood sugar at the beginning was 89 mg.; three hours later, the child still fasting, it was 74 mg. March 19 a test was made to determine the effect of the ingestion of a large amount of dextrose. At 9:15 a. m. without breakfast the blood sugar was 94 mg., and the urine normal; between 10 and 10:30 the child was given 400 Gm. of dextrose, of which a small amount was vomited; at 11:15 the urine showed a decided sugar reaction; at 11:40 the blood sugar was 103 mg.; at 12 the urine gave a trace of sugar. March 21, a test of the effect of epinephrine was performed. The fasting blood sugar was 58 mg.; 8 mg. of epinephrine was given intravenously; in fifteen minutes the blood sugar was 68 mg. A severe reaction was produced.

The eighth and last admission of the patient was on April 20, 1929. The child had been perfectly well in the morning. He had had his usual breakfast and had defecated three hours later. He then suddenly became unconscious and was brought to the hospital within twenty minutes. There had been no fever. He was weak and unconscious, with slight strabismus and a normal temperature. The blood sugar was 36 mg. He was given 7 mg. of epinephrine intravenously, which caused a severe reaction. Within two minutes he opened his eyes and talked coherently.

This patient suffered earlier from convulsions, the effects of which were slow in passing off. After hypoglycemia was discovered the recovery from the convulsive attacks became astonishingly rapid and complete, following treatment for the low blood sugar content. Experimental tests showed a slow and imperfect rise in the blood sugar content even when massive doses of dextrose were administered. There seemed to be probably a persistent tendency to a more or less low blood sugar content.

CASE 2.—J. W., a boy, aged 5 years, had been in good general health until the morning of March 20, 1929. He ate his breakfast as usual but shortly afterward vomited without warning and had a "queer look in his eyes." At 10 a. m. convulsions began and continued, and he was brought to the hospital at 1 p. m. with convulsions and a temperature of 96.4. The blood sugar was found to be 37 mg. per hundred cubic centimeters. He was at once given intravenously 200 cc. of a 5 per cent dextrose solution, with which was combined 5 units of insulin, with the idea that he was suffering from acidosis. There was improvement for a short time, but the unconsciousness returned with stertorous respiration and frothing at the mouth. On the theory that the insulin had caused the persistence of the hypoglycemia, he was given intravenously 20 Gm. of dextrose without insulin. The response was almost immediate; consciousness returned, although the child was still in a somewhat dazed state and would not swallow. April 20 a dextrose tolerance test was made with the following results: At 8 a. m. the fasting blood sugar was 74 mg.; at 9:30 a. m. the boy was given 50 Gm. of dextrose, and at 10 a. m. the blood sugar was 105 mg., with the urine showing a trace of sugar; at 10:45 a. m. the blood sugar was 109 mg., and the urinalysis was negative; at 11:45 a. m. the blood sugar was 114 mg., and at 2 p. m., 81 mg. Epinephrine, 7 mg., was now injected as an experiment and ten minutes later the blood sugar was 107 mg.

May 28, the child was readmitted for a study of the effect of the ingestion of large amounts of dextrose, with the following results: May 29, the fasting blood sugar was 78 mg.; the patient was given 300 Gm. of dextrose as lemonade, some of which was later vomited; after one-half hour the blood sugar was 114 mg.; the second half hour, 105 mg., and the third half hour, 135 mg.

This patient, not subject to convulsions, developed a prolonged attack without fever or previous fasting. The effect of treatment was strikingly rapid.

For the sake of comparison, the two following case histories may be cited from the service of Dr. Alfred Hand, in the Children's Hospital. These are instances in which the examination showed the blood sugar to be low; but in one case there had been no convulsions at any time and in the other there were none at the time of admission.

CASE 3.—E. J., a girl, aged 5 years on admission, Jan. 1, 1928, had had moderate bronchitis, but there was no history of convulsions. Tests made several days after her admission to the hospital showed that the blood sugar without fasting was 51 mg.

CASE 4.—A. M., a girl, aged 4¼ years on entrance to the hospital, May 14, 1929, had a history of convulsions in the past, but was brought to the hospital because of tonsillitis, and with a diagnosis of diabetes. The latter was certainly erroneous, no sugar being found at any time in the urine under the ordinary hospital diet. May 15, the blood sugar without fasting was 39 mg.; May 22, 98 mg., and June 14, 114 mg.

A few other cases may be referred to in which an association between the hypoglycemia and the convulsions seems unlikely:

CASE 5.—A boy, aged 5 years, admitted to the hospital, March 23, 1929, with the diagnosis of epilepsy, probably the result of injury, had had frequent convulsions occurring at irregular intervals. The present attack began at 11 p. m., March 22, with convulsions and vomiting. This condition continued to the morning of March 23. The blood sugar on entrance was 38 mg. Two injections of dextrose were given in the afternoon, followed by a cessation of the symptoms by 11 p. m. The blood sugar two days later, March 25, was 87 mg.

Here it is uncertain whether the low blood sugar was not merely the result of the vomiting and fasting. The convulsions were almost certainly dependent on an organic cause. The injection had apparently no immediate effect on the symptoms.

Case 6.—A boy, aged 6 weeks on entrance to the hospital, April 30, 1928, had had frequent convulsions since the third day of life, with some evidence of an intracranial lesion. There was slight fever. The convulsions continued in the hospital, although less frequently. May 9, the blood sugar was 51 mg. May 14, the convulsive condition was improving but was still present. The blood sugar on this date was 87 mg.

In spite of the low blood sugar, with a later rise, there seems no possible causative connection here between hypoglycemia and the convulsive state.

Case 7.—A boy, aged 8 years, seen Feb. 9, 1929, probably had congenital mental deficiency and later suffered a trauma to the head. He had recently developed what was probably encephalitis and had had convulsions for four days with tremor and occasional vomiting. February 11 the blood sugar was 57 mg.; February 18 it was 98 mg.

Apparently there was no connection at all between the blood sugar and the symptoms. The convulsions seemed certainly due to an organic cause and the symptoms did not change materially with the change in the blood sugar content.

Two other cases of unusually low blood sugar content may be reported, in which the relationship of the convulsions to the hypoglycemia seems probable but was rendered uncertain by the effect of treatment:

Case 8.—J. S., a boy, aged 2½ years, developed convulsions, April 1, 1929. His general health and appetite had been good. One previous attack had occurred, but none took place later while he was in the hospital. June 21, he had had diarrhea; had gone to bed as usual, and had wakened at 7 a. m., June 22, with convulsions. He was brought to the hospital in a convulsive state with a temperature of 102, at 8 a. m. The blood sugar was 28 mg. Injections of dextrose were given several times during the day but combined with insulin. Convulsions or stupor lasted all day. A dextrose tolerance test made several days later, June 27, gave the following results: Before the test the blood sugar was 81 mg.; the boy was given 26 Gm. of dextrose, and one hour later the blood sugar was 158 mg.; two hours later it was 69 mg., and three hours later, 70 mg.

The administration of insulin with the dextrose possibly interfered with the immediate relief of the hypoglycemia and prevents any conclusions. By the time the dextrose tolerance test was made the child had evidently reached a condition with average normal figures.

Case 9.—T. A., a girl, aged 3 years, had had one convulsive attack in February and another in April, 1929, but otherwise her general health had been good until May 11, at 10 p. m., when she had fever and a slight convulsion. On the morning of May 12 she awoke drowsy; at noon she had another convulsion and was brought to the hospital with a temperature of 103. She recovered from the convulsion promptly. The blood sugar content was not taken until May 21, and was then 98 mg. She was discharged, June 11, and continued well until 2 p. m., June 23, when she had a convulsion and was returned to the hospital in a convulsive state and with a temperature of 101. The blood sugar was 54 mg. She was given dextrose intravenously but with insulin, and the effect on the sugar content cannot therefore be determined. A dextrose tolerance test was done, July 5. The fasting blood sugar was 92 mg.; dextrose was given, and one hour later the blood sugar was 149 mg.; two hours later, 99 mg., and three hours later, 77 mg.

In this case, as in case 8, there seemed nothing wrong with the dextrose tolerance after the attack was well over. The cause of the moderate dimunition in the blood sugar on admission in this case is not clear. There was no history of fasting.

COMMENT

The determining of the indications of the histories and of the laboratory observations in the cases just cited becomes a matter of great difficulty and uncertainty, owing to the numerous contradictions that seem to arise.

First may be considered the bearing of the data on the influence of fasting, to which reference was made by Josephs. It does seem to be true that there appears to be a decided tendency for convulsions to develop in the early morning before breakfast. Yet in case 1, although the attacks had nearly always occurred at this time, on the last occasion, after the usual breakfast, the symptoms did not appear until at least three hours later and the blood sugar was then 35 mg. In case 2, also, the attack took place at 10 a. m., after the child's usual breakfast, and the blood sugar at 1 p. m. was 37 mg. Patient 9 likewise had her convulsion at 2 p. m., with the blood sugar 54 mg. Low blood sugar, therefore, may readily occur in convulsive conditions in children who have not been fasting.

Fever likewise has been suggested as influencing the development of hypoglycemia, and one can readily understand that this may be possible. In a number of cases here reported fever was present; in others not. In case 1 there was no fever in at least three of the attacks. In case 2 the temperature was subnormal. In cases 8 and 9, fever was present.

With regard to the whole question of the possible influence of short fasting, one cannot but remember that every child past early infancy wakes in the morning after the night's short fast; that if the fasting per se produces a low blood sugar, then every child should have hypoglycemia at this time of day, and that if hypoglycemia is the cause of the convulsions, then every child should exhibit this on waking. It is obvious, since none of these things occur, that some other factors unknown at present are at work either to permit the fasting to produce the hypoglycemia or to cause the hypoglycemia to produce the convulsions, if, indeed, there is any etiologic relationship. That fasting, whether for a shorter or a longer period, may lower the blood sugar, especially in childhood, has been pointed out by various writers, among them Shaw and Moriarty,[2] who found in a series of epileptic children a very decided drop in the blood sugar content during fasting.

Furthermore, with regard to the possible action of fever, it is of the most frequent occurrence for a child to develop a slight digestive disturbance with fever, loss of appetite and perhaps vomiting. The child may go to bed in this condition and wake with fever persisting, and possibly a continuance of vomiting. The occurrence of a convulsion in combination with this syndrome is repeatedly witnessed by every physician. But if this occurrence is compared with the number of cases which exhibit the other symptoms but no convulsions, the relationship is distinctly common. It is evident again that even the combination of short starvation with fever needs something more to produce the convulsive attacks.

The influence of the degree of hypoglycemia which might be assumed as necessary for the development of convulsions is a question of interest. Case 1 exhibited on one occasion 20 mg. of sugar per hundred cubic centimeters of blood; on another occasion, 28 mg., and on another, 36 mg. The blood sugar in case 2 was 37 mg.; in case 8, 28 mg., and in case 9, 54 mg. The range, then, for the blood sugar content during the convulsive state would seem in these cases to run from

2. Shaw, E. B., and Moriarty, Margaret: Hypoglycemia and Acidosis in Fasting Children with Idiopathic Epilepsy, Am. J. Dis. Child. 28: 553 (Nov.) 1924.

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20 to 37 mg., with the exception of one case showing 54 mg. These figures are offset, however, by 51 mg. in case 3 and 39 mg. in case 4, which exhibited no convulsions, and 38 mg. in case 5, 51 mg. in case 6, and 57 mg. in case 7, in all three of which the convulsive condition seemed more chronic and distinctly due to an organic cerebral lesion. Moreover, the symptoms in the last three cases did not appear to alter materially with variations in the blood sugar content which later occurred. In fine, as Josephs has pointed out, there does not appear to be any fixed level at which convulsions in children may be expected to occur even in the individual; and this is still more true of children as a class.

It would be interesting to determine what relationship, if any, there is between the hypoglycemia during convulsions and the general tolerance of the child for dextrose. This was tested satisfactorily in only two cases. In case 1 it seemed probable that there was a certain inability to retain sugar in the blood in a normal manner. The dextrose tolerance test did not raise the blood sugar above 106 mg. on one occasion and 109 mg. on another. Further, the feeding of excessive amounts of dextrose brought the blood sugar up to only 86 mg. in one experiment and 113 mg. in another. In case 2, likewise, the dextrose tolerance test did not raise the blood sugar above 109 mg., although a later test by feeding excessive amounts of sugar raised the sugar content of the blood to 135 mg.

With regard to the tests in which the giving of dextrose by mouth is concerned, it should be stated that absolute trust cannot always be placed on the time interval, owing to the length of time sometimes required to accomplish the ingestion if the child shows lack of cooperation.

Merely for the sake of comparison and as a control a dextrose tolerance test was done on a healthy child weighing 25 Kg., with the following results: At 9 a. m. the blood sugar was 84 mg.; 100 Gm. of dextrose was given, and at 10 a. m. the blood sugar was 161 mg.; at 11 a. m., 94 mg., and at noon, 99 mg.

Finally, the question of the therapeutic test arises. In case 5, in which the convulsions were surely epileptic although the blood sugar was 38 mg., the intravenous injection of dextrose had no immediate effect on the symptoms. This was to be expected. As Lennox and Cobb [3] pointed out in their exhaustive review of the subject of epilepsy, there seems, as a rule, to be no connection between hypoglycemia and the occurrence of epileptic attacks. On the other hand, in case 1, after the convulsive condition had lasted some hours without signs of improvement, the patient suddenly regained consciousness after only a portion of the dextrose solution had been injected. The suddenness and completeness of this was impressive to all who saw it. In the second attack in which dextrose was given, the effect was also prompt though less so; while in the third and fourth attacks an almost immediate response was seen as before. In the fifth attack (eighth admission) after an injection of epinephrine consciousness returned within two minutes. The relationship of the hypoglycemia, the treatment to relieve this, and the result was so striking in this patient that the opinion can hardly be avoided that an intimate association seems to exist. It is not, of course, the recovery from the convulsions that is the criterion, since recovery is the rule, but the manner of recovery that is to be considered.

3. Lennox, W. G., and Cobb, S.: Medicine **7**: 105 (May) 1928.

It was observed in the cases reported that vomiting was of frequent occurrence at the time of the attack. It was not, however, as obstinate or severe as in cases of recurrent vomiting, the possible relationship of which to hypoglycemia was studied by Ross and Josephs.[4]

The discussion of this matter is apart from the purposes of the present paper.

CONCLUSION

From the cases cited it appears evident that in convulsions in children there is probably a frequent association between this disorder and the existence of a low blood sugar content. Whether, however, this is an etiologic relationship cannot be determined from these investigations; and they show, further, that a low blood sugar may exist without the occurrence of convulsions. On the other hand, in the first case, which was that most carefully studied, the remarkably rapid improvement on four different occasions, and the rapid response seen also in the second case, seem to justify the conclusion that, at least in some instances, the causative relationship of hypoglycemia to convulsions may be reasonably assumed.

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4. Ross, S. G., and Josephs, Hugh: Metabolism of Recurrent Vomiting, Am. J. Dis. Child. **28**: 447 (Oct.) 1924.

BILATERAL SUBMUCOUS TRANSPLANTATION OF URETERS INTO LARGE INTESTINE BY TUBE TECHNIC

CLINICAL REPORT OF TWENTY CASES

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Transplantation of the ureters has been one of the most perplexing problems that have ever engaged the attention of surgeons. The reason is that heretofore this operation has been considered to be nothing more than the artisan's technic of performing a mechanical feat. Instead, it must be looked on as nothing less than the means of execution of a biologic plan for transmutation of the mammalian to the avian eliminative system. This involves the studious consideration of physics, anatomy, physiology and bacteriology, as well as mechanics, in formulating a technic.

Our concrete problem is the transmission or transfer of the relatively sterile product of a vital secreting or excreting organ, in which the pressure must be low and regular, into a muscular reservoir, infested with bacteria, in which the pressure is high and irregular. Furthermore, the patient must be alive and well after the operation.

PHYSICS

As far as I know, there is no mechanism by which fluid may be transmitted from a chamber of low pressure to one of higher pressure without the use of the valve principle.

ANATOMY

There is no place in the animal organism where the product of a secreting organ is delivered into a muscular reservoir without the use of the valve principle. In all cases the valve is made by the duct running beneath the mucous membrane of the receiving organ, for a distance, before emerging into its lumen. This plan must be duplicated surgically if the integrity of the secreting organ and its delivery duct is to be preserved.

PHYSIOLOGY

The fluid is delivered into the reservoir by intermittent muscular action or peristalsis. The peristaltic force may be in the delivery duct, in which case delivery is made by direct force. It may be in the wall of the receptacle or reservoir, in which case delivery is made by creation of a vacuum that follows in the wake of a peristaltic wave. Or it may be by the synchronous action of the two.

BACTERIOLOGY AND PATHOLOGY

The operation must be performed in such a way that infection will be avoided. In doing this, serious difficulties are encountered: First, the peritoneal cavity must be opened. It is highly susceptible to infection. To be sure, it has defensive powers in proportion; but even these defenses may prove tremendous dangers in themselves, for the gastro-intestinal tract may be impaired or actually obstructed by adhesions resulting from these defenses. Second, the retroperitoneal space must be opened. Here, nature's defense against infection is at its poorest. The slightest infection in this space, in the absence of drainage, is liable to produce fatal results. With both the peritoneal cavity and the retroperitoneal space open and exposed, the two great sewer systems, one of which may be termed a cesspool, must be opened and connected. This must be done in such a way that the greater pressure and the virulent infection of the cesspool cannot hinder or enter the other system.

At the meeting of the Clinical Congress of the American College of Surgeons at Boston in 1928, I [1] presented the results of eighteen years' experimental and clinical research in the form of a technic that had for its purport the performance of this operation in such a way as to meet and cover all the problems involved. At that time, I reported nine consecutive cases in which operation was done by this technic. When I was asked to hold clinics during the meeting of the American Medical Association, it occurred to me that I could probably do no better than confine my work to this one procedure. It seemed that this would be a good opportunity to submit the evidence to the jury which must finally decide the case; namely, urologists and surgeons.

The American Urological Society met in Seattle, July 1. At this meeting, an invitation was given to the members to attend a series of clinics to be held in Portland on this subject during the annual session of the American Medical Association. More than forty of the members signified their intention to attend these clinics. In addition to urologists, a number of general surgeons and gynecologists were invited. Three clinics were held on three days. On each day, one transplantation operation was performed. The thirteen cases in which the operation had been done up to that time were reported in full. Eight of the patients on whom the operation had been done were present and were shown at two clinics, July 9 and 11. Specimens from two patients on whom the operation had been done as a palliative measure for hopeless cancer of the bladder and who had later died of cancer metastases not involving the kidneys were exhibited. The interest manifested was considerable. The questions asked and suggestions made by those present led me to believe that a brief statement compiled from the records showing what has happened following these operations in all the cases up to the present time might be of interest. The exact operation, including preoperative and postoperative care, described elsewhere,[1] has been used in all cases. For brevity, the histories have been reduced to a minimum. Every page of bedside notes (more than 1,400) has been reviewed. All and only those incidents are reported which are of vital importance or which might cause apprehension on the part of a surgeon. The time of reestablishing food intake and bowel action has been recorded as an indication of the general reaction of the patient. No cathartics or other artificial means of producing bowel action have been used. The time shown for operation covers the time elapsed from the beginning of the first incision to the time of application of the dressings.

1. Coffey, R. C.: Surg. Gynec. Obst. 47: 593 (Nov.) 1928.

REPORT OF CASES

Case 1.—A boy, aged 20 months, with exstrophy of the bladder, entered the hospital Feb. 11, 1927. The rectal temperature was 99.2. The operation was performed February 12, in two hours and fifteen minutes. The ureters were found dilated and thickened, easily admitting number 8 catheters (the largest available at that time). The patient returned from the operating room in good condition. At 5 p. m. the catheters were draining. The first postoperative day the patient vomited frequently; on the second there was occasional vomiting; on the third the bowels moved well and the patient took hot water and milk. On the fourth postoperative day the catheters were not draining and were therefore removed by cutting the ureters in the rectum under anesthesia. The patient took liquid nourishment on the sixth day. On the eleventh he was restless; he held the urine for a short time; the temperature was 104. On the nineteenth postoperative day the patient was taken home in spite of the high temperature. Ten days later he was reported to be without fever. A letter dated Jan. 23, 1929, received from the father from North Carolina, stated that the boy was doing well and was better than ever before. This was approximately two years after operation. Recently, word has come from Dr. Rives Jones of Winston-Salem, N. C., that the child died two years and five months after operation. The cause of death was acute colitis, manifested by watery stool mixed with blood and mucus. The child succumbed after seven days of acute illness.

Case 2.—A woman, aged 38, married, had carcinoma of the cervix, vagina and bladder with extensive involvement of all pelvic organs, and had been given a hopeless prognosis. The bladder distress was intolerable. A palliative transplantation operation was performed, Feb. 22, 1928, in two hours and forty-five minutes, in the presence of the members of the Pacific Coast Surgical Association. Number 10 ureteral catheters were used. The patient returned from the operation in good condition. Both catheters were draining. On the first postoperative day the urine was slightly bloody but the patient was comfortable; on the third day she was taking broth. She had a light diet on the sixth day, and gas was expelled. There was pain in the lower portion of the abdomen on the seventh day, and the bowels moved for the first time; the urine was clear and came from both catheters. On the tenth postoperative day, urine appeared in the rectum around the catheters. On the twelfth, the catheters were removed; the twenty-second, 600 mg. hours of radium was applied in the vagina; on the twenty-seventh, 1,200 mg. hours of radium was given, and on the thirty-second postoperative day the patient walked; 1,200 mg. hours of radium was applied on the thirty-fourth, and on the thirty-seventh postoperative day the patient was discharged in good condition. There was no bladder distress. April 28 the patient returned, and the cancer was found to be extending very rapidly. On request of the patient, 2,400 mg. hours of radium was applied as a last hope. In June, 1928, she came again and it was found that the pelvis was entirely filled with a cancerous mass. The growth was encroaching on the rectum on all sides, making a cancerous tube of it, but was not involving the mucous membrane. August 4, the patient wrote that she was gradually growing weaker. October 12, approximately eight months after

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operation, the patient died while I was away. No postmortem was held. There was no evidence of kidney trouble at any time.

CASE 3.—A boy, aged 15, had exstrophy of the bladder. At Doernbecher hospital in association with Dr. W. H. Bueerman, the operation was done, April 4, 1928, number 12 ureteral catheters being used. In cleansing the bowel, the sigmoidoscope was pushed through the wall of the sigmoid into the hand of the operator by an extra assistant who had not assisted with this operation before. The rent in the sigmoid was closed with several layers of chromic catgut and the sigmoidoscope was reinserted and the rectum prepared as usual. The left ureter was transplanted below the accidental puncture and the right ureter above it. The time for the operation was two hours and thirty minutes. On the first postoperative day, dextrose was administered intravenously, followed by a chill. On the third postoperative day the patient took a liquid diet. On the eleventh day after operation, he vomited, and on the thirteenth day the catheters were removed. He was up in a wheel chair on the twenty-fourth day and on the thirty-fifth he dressed and went outdoors. During the progress of this case there was a good deal of distress in the region of the right kidney. Dr. Bueerman thought there was pyelitis. On the sixty-second postoperative day Dr. Bueerman removed the bladder, which was followed by a slight rise of temperature lasting a day or two. The patient was discharged on the ninety-seventh postoperative day. He entered school in September and made his grades throughout the year. He reported at the clinics, July 9 and 11, in good health and stated that he had not had any difficulty in holding the urine and there was no distress. As evidence of his enthusiasm and good health, he wrote, July 24, 1929, fifteen months after the operation: "I am getting along just fine. Went to White Salmon, Wash., all last week and picked cherries. Had a good time and made $15.19."

CASE 4.—A woman, aged 39, married, had an incurable vesicovaginal fistula. April 5, 1928, a cystoscopic examination was attempted. The bladder was found to be a knot of cicatricial tissue. One of the ureters opened directly into the fistula. Five or more attempts at repair had been made. There was no hope of repair. The operation was performed, April 10, number 12 catheters being used. The time required was two hours and thirty-five minutes. The ureters dilated to the size of a man's little finger. When opened, both ureters were thick walled and held cloudy urine; in the left ureter the urine was decidedly purulent. The patient left the operating room in good condition. Both catheters drained immediately. On the fourth postoperative day, the patient expelled gas freely; both catheters were draining, and the patient took albumin water. On the fifth day the left catheter came away, the ureter having been cut through to the catheter by ligature; on the seventh, there was pain in the right kidney region; the patient vomited several times, and the right catheter was found blocked but not loose. The end of the catheter was cut off, and drainage was reestablished thereby. There was recurrence of pain over the right kidney on the eighth postoperative day, and on the ninth the catheter was removed from the right kidney. On the twenty-fifth day the patient sat up and she was discharged on the thirty-third postoperative day. In response to a letter asking her to come for the clinics, July 9 and 11, I received the following: "Dear Doctor: Received your invitation for the doctor's convention today. Will be glad to come as I feel very good. I have not been sick a day since I came home from Portland. I have not been so well since 1918. I do all my own housework and milk six cows twice a day." The patient was presented at the clinics, where she confirmed the letter in her personal statements.

CASE 5.—A woman, aged 54, married, with carcinoma of the bladder, registered at my clinic, May 1, 1927. Examination revealed a papillomatous growth in the bladder; it was fulgurated unsatisfactorily. The trigon afterward presented a definitely malignant appearance and bled easily on being touched. May 26, a cystotomy was performed; 50 mg. of radium was screened and placed directly in contact with the growth. It was held in place by a gauze pack for twenty-four hours. The growth disappeared. By June 22, 1928, the growth had returned, and transplantation was advised. The operation was performed, July 3, number 12 catheters being used. The time required was two hours and fifty-five minutes. The patient returned from the surgery in good condition. On the first postoperative day there was occasional vomiting but both catheters were draining well. Albumin water was taken on the second day, and on the third the patient expelled gas freely. On the fifth day the patient took a liquid diet, and the bowels moved. On the ninth day there was pain over the left kidney, and on the tenth, both catheters were draining but some urine escaped into the rectum. The catheters were removed on the twelfth day, and on the twenty-fourth the patient walked on the porch. On the twenty-fifth postoperative day the patient complained of feeling chilly, and there was a rise in temperature. On the twenty-eighth, the patient was fully dressed, and on the thirty-second day, 2,400 mg. hours of radium was applied in the vagina. The patient was discharged on the thirty-fourth postoperative day. September 20, she was readmitted for a cystectomy. The wound was drained through the vagina. On the ninth postoperative day the patient had a chill; the temperature was high. There was sloughing of the breast following subpectoral infusion which accounted for the chill and fever. The patient was very anemic and much depleted following the sepsis from the sloughing. She was presented at the clinics, July 9 and 11, 1929. "She is feeling well and holds the urine without distress for two or three hours during the day. She gets up once and sometimes twice at night. The patient is rapidly gaining in health, and does the housework and cooking for a family of ten."

CASE 6.—A man, aged 28, had advanced carcinoma of the bladder of three years' duration. The case was considered hopeless. The cancerous mass extruded through the cystostomy wound. The patient was cachectic; the hemoglobin was 36; the temperature 100.6, and the pulse rate 100. A blood transfusion was made. An operation was performed, Aug. 3, 1928, in two hours and thirty minutes. Both ureters were dilated; the right one was as large as a man's little finger, the wall being thin and avascular. The patient returned from the operating room in good condition. On the third postoperative day, beef juice was given. On the fifth, urine began to escape into the rectum; the catheters were blocked; the left catheter came away with slight traction; the right was removed with difficulty; with it, a small longitudinal piece of ureter came away. At night, the patient had a chill and a high temperature. He was nauseated on the sixth postoperative day, and on the eighth the urine and feces came through the wound and also through the rectum. On the twelfth day a blood transfusion was made. The bladder was opened with a cautery and 1,000 mg. hours of radium was applied. On the fifteenth, a smaller amount of urine came through the wound, and on the thirty-second day gas and feces escaped through the wound. The patient was in a wheel chair on the thirty-seventh postoperative day and on the forty-first, he had a chill. He was walking on the forty-eighth day, and on the fifty-fourth the fistula seemed almost healed. On the eighty-third day, 475 mg. hours of radium was applied in the bladder, and on the eighty-sixth postoperative day, the patient was discharged. He returned later for radium treatments, 2,400, 2,000, 600, 1,800 and 1,000 mg. hours, respectively. At my request, the patient returned for the clinics, July 9 and 11. The hemoglobin was then 65, against 36 a year ago. A white fibrous cavity, with very slight discharge, represented the original site of the bladder. There was no local evidence of active cancer. The patient was entirely comfortable and was not disturbed by the urine in the rectum.

CASE 7.—A man, aged 49, had very advanced carcinoma of the bladder. A malignant growth, the size of a golf ball, had been removed by Dr. J. Thomas Whitty in November, 1927. The growth returned. The chief complaint was bladder distress consisting of heavy bearing down pains and frequency of urination. A palliative operation was performed Aug. 4, 1928, to relieve the bladder distress. The time required for the operation was two hours and twenty-five minutes. The carcinoma was very extensive, coming from the right bladder wall; the right ureter passed through it and dilated above to the size of a man's finger. Number 12 catheters were employed. The lymph glands along the right iliac vessels and the ureter were enlarged to the size of walnuts and were apparently involved by the cancerous process, making the case entirely

hopeless. The patient returned from the operating room in good condition. On the first postoperative day there was a tinge of blood in the urine. The next four days were uneventful. On the sixth day the patient took a liquid diet, and the bowels moved well. On the sixteenth day he was in a condition of partial stupor. Both catheters were still draining but were easily removed. On the seventeenth day, the bladder was opened with the cautery and 1,000 mg. hours of radium was used inside the bladder to control the bleeding. The patient was up in a chair on the thirtieth day, and on the forty-sixth he was discharged. Following is a report from Dr. Whitty: "Mr. K. died, Oct. 18, 1928, and the postmortem examination was made by Dr. Cefalu, pathologist. The only abdominal organ free from the malignant condition was the liver. The bowels were involved. The transplants were perfect. I have the specimen. The bladder was nearly all involved; also the bowel above the transplant. The last week he lived, he failed rapidly because of the impossibility of getting a bowel movement. I am happy he has passed away; sorry it was not more hopeful for your sake, but at that he did not suffer from the burning and frequency he had when he presented himself to you." Dr. Whitty kindly sent me the specimens which are reproduced here. The valves in the mucous membrane were perfect. The right ureter was much smaller than when transplanted. The right kidney pelvis was dilated. There was no evidence, however, to show that the kidney was more dilated at the time of death than it was at the time of operation. The left kidney appeared to be normal (fig. 1). Dr. H. H. Foskett, pathologist, who made the microscopic study, reported that a study of numerous sections from the left kidney revealed a moderate amount of parenchymatous degeneration of the epithelium as indicated in figure 2, with occasional patches of leukocytic infiltration in the cortex. The glomeruli and interstitial tissue did not show any noteworthy change and the general picture revealed only slight deviation from the normal. Sections from the right kidney (fig. 3), in which there was a dilated pelvis and ureter, revealed a more diffuse leukocytic infiltration with a somewhat greater degree of degeneration of the kidney epithelium. There were occasional areas of old hemorrhage in this kidney. Here again if one discounts the pathologic changes due to postmortem degeneration, there was a rather small amount of definite pathologic change other than that produced by the obstructed and dilated ureter in the right kidney. With proper drainage, it would seem that this kidney should have recovered its functional efficiency to a large extent.

CASE 8.—A woman, aged 54, unmarried, has carcinoma of the bladder with abdominal metastases. In January, 1927, the bladder tumor fulgurated several times. In March, 1928, Dr. C. C. Kehl removed the tumor from the bladder and later it was again fulgurated. The growth returned and was distressing and appeared hopeless. The operation was done, Aug. 20, 1928, in two hours and thirty-five minutes. In addition to the bladder carcinoma, there was extensive involvement of the lymphatic glands along the course of the right ureter, which was dilated to the size of a man's little finger. The left ureter was dilated, although less than the right. Number 12 catheters were used. The patient returned from the operating room in good condition. The catheters were draining within an hour. On the first and second postoperative days, the patient vomited a good deal. Gas was expelled through a rectal tube. On the third day the vomiting had ceased and the patient took water by mouth. On the fifth day she took a liquid diet; the bowels moved well. On the eleventh day, both catheters were removed. The following days were uneventful except for pain in the dorsal spine and stiffness of the arms. The patient sat in a chair for twenty-five minutes on the twenty-eighth day, and on the thirty-seventh the question of the patient returning to her home in Seattle was discussed, but the patient was dependent on her family, who, having been advised by me that she would probably not live more than three months on account of the metastatic cancer, decided that she should remain in the hospital as long as she lived. The operation had entirely relieved the pain in the bladder, and, owing to the extensive metastases in the abdomen above, no radium was applied. As the weeks passed, she was from time to time up and down complaining of an arthritis involving the finger joints which led us to believe that probably the pain in the back had been due to arthritis instead of metastases. About 253 days after operation, the patient became bedfast. During all this time, apparently normal urine was passed from the rectum and was discharged from six to eight times during the twenty-four hours. She never became very thin and never had an increase in temperature until 289 days after operation, when she rapidly failed and died on the following day.

A postmortem was immediately done. General carcinomatosis involved the mesenteric lymphatic glands and the retroperitoneal glands and fat, chiefly on the right side of the abdomen. The growth in the bladder had not extended materially since the time of operation. All the organs from the diaphragm downward, including the mesenteric glands and including the rectum within an inch or two of the anus, were removed. The kidneys appeared to be normal notwithstanding the fact that the right one especially was surrounded by cancerous tissue. The space in the hollow of the sacrum back of the rectum was not involved with cancer. The kidneys were exposed from behind the mass and the fat around the ureters was separated from the transplanted ureters down to the point at which they entered the sigmoid. The colon was severed approximately 4 inches above the site of implantation, and the connective tissue back of the rectum was carefully preserved with the rectum. Both kidneys were split and appeared to be macroscopically normal for a person of this age. There was no pus, and no great enlargement of the pelvis of either kidney. A small amount of clear urine was found in each kidney. The right ureter, which was so large at the time of operation, had diminished in size since then. The left ureter was not a great deal larger than normal. Each ureter was then split from behind and a white wooden probe or applicator was passed into the bowel and the bowel was split so that the valves could be observed. The specimen was immediately turned over to Mr. Trahar, the artist, who made photographs and at the same time recorded the color existing in the fresh specimen. The specimen, after four days on ice, was then preserved in Kaiserling's solution and later in solution of formaldehyde, and was exhibited to the physicians at each of the three clinics on ureteral transplantation given during the meeting of the American Medical Association. The pictures shown in figure 4, when compared with the specimen, faithfully portray all its details.

Dr. Foskett reported that a study of numerous sections from various areas of the right kidney revealed the picture seen in figure 5. Here one finds evidence of old, chronic nephritis in the proliferation of interstitial tissue and occasional obliterated glomeruli. The parenchyma shows a rather marked degenerative process with occasional infiltrating leukocytes. The degeneration of the epithelium has progressed to the point of complete dissolution of the cells in some instances. A similar study of sections from the left kidney (fig. 6) revealed the same evidence of chronic nephritis with occasional infiltrating leukocytes. The degenerative process, however, was less marked. So far as a histologic picture makes it possible, one might estimate that the parenchyma of the right kidney was from 50 to 75 per cent destroyed, and the parenchyma of the left kidney approximately 25 per cent destroyed. If one takes into account the fact that a large amount of this degeneration was postmortem change caused by the time consumed by the artist, there apparently remained a reasonable margin of functional ability beyond absolute requirements.

CASE 9.—A widow, aged 33, with an incurable vesicovaginal fistula following radium treatment for carcinoma of the cervix and the vagina, was very anemic. Operation was performed, Aug. 24, 1928, in two hours and ten minutes. Number 12 catheters were used. The bladder was distorted by scar tissue. The uterus was atrophied. The left ureter was about twice the size of the normal ureter and was thickened. The right ureter was as large as a man's index finger, very thin and tortuous. A blood transfusion of 700 cc. was done. The patient returned to bed without shock, both catheters draining freely. On the second postoperative day, the urine was tinged with blood. On the third day the right catheter was partially obstructed and was irrigated with boric acid solution. The patient took a liquid diet. The left catheter was removed on the eighth day, and on the ninth the right catheter was still

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retained and was irrigated. The urine returned with a sandy sediment. At this point, Dr. Spangler devised a stylet made of piano wire with a metal tip with which he cleaned the obstructed catheter. The right catheter came away on the thirteenth day, and on the fourteenth there was a slight rise in temperature. An ischiorectal abscess was opened on the fifteenth day, and on the twenty-seventh the patient was up in a chair. On the thirty-second day, she complained of pain in her leg, vomited and refused meals. She was discharged on the thirty-sixth postoperative day, with a temperature of 98; the pulse rate was 88; the bowels moved well and the patient felt well. May 7, 1929, she wrote: "I am still among the living and feeling wonderful. I weigh 140 pounds [63.5 Kg.]. Was laid up for twelve weeks with a broken knee but able to be around again. Very well at present." May 24, I invited her to be present at the clinics. Her reply in part was: "I will be in Portland by July 8, as I feel sure that I will be some encouragement to those who are skeptical regarding ureteral transplantation." Her knee became worse, requiring a cast which prevented her coming.

CASE 10.—A boy, aged 5, with exstrophy of the bladder, was operated on, Oct. 23, 1928, in two hours and twenty-two minutes. There were two ureters coming from the left kidney and one from the right kidney. The two left ureters were parallel and more than a half inch apart, each of them easily admitting number 10 catheters. They were webbed together by a firm membrane and were not separated in doing the operation. Both ureters with their contained catheters were drawn through the same opening in the intestine and buried in the intestinal wall together. A number 10 catheter was used also in the right ureter. The patient was in moderate shock. He developed a severe cough, which harassed him for several days. One left catheter was dry until the sixth postoperative day, but on the eleventh day the two catheters were discharging about equal amounts, and on the thirteenth a phenolsulphonphthalein test found the kidneys functioning properly through all three catheters. The catheters were removed on the fifteenth day, and on the sixteenth there was pain in the back over the left kidney region. On the twenty-fourth day there was pain in the chest and also in the back and the left kidney region; a high temperature was present. There was tenderness on pressure over the left kidney on the twenty-seventh day, and on the twenty-ninth he vomited. On the thirty-first day he had fever, 105.6, and the abdomen was distended. On the fortieth day the patient was up in a chair, and the temperature was normal. He was discharged on the forty-ninth postoperative day. Jan. 1, 1929, the child with his parents returned to pay a New Year's call at which time he exhibited his first pair of trousers. He returned for the clinics, July 9 and 11. The mother reported that the child was rapidly gaining strength, looked well and discharged urine from the rectum about once during the night.

CASE 11.—A girl, aged 2 years, with exstrophy of the bladder, was operated on, Nov. 13, 1928, in two hours and twenty-five minutes. While the sphincter control was good, the anus was small and inelastic. Instead of a sigmoidoscope, an ordinary uterine packer was inserted, through which the rectum was washed and the dry gauze introduced. The right ureter easily admitted a number 10 catheter. The left ureter admitted a number 10 catheter about 2 inches, when a stricture was encountered making it necessary to withdraw the number 10 and use a number 8 catheter. The patient returned from the operation in good condition. Both catheters were draining. She vomited frequently during the day. On the second postoperative day she took a liquid diet. Gas was passed on the third day, and on the sixth the catheters were irrigated. On the eighth day the catheters were draining freely but came away without traction. On the twenty-ninth day, the child was clothed and walked around. She was discharged on the thirty-seventh postoperative day. The mother brought the child in for the clinics. The child at this time was remarkably healthy, turning somersaults and performing all kinds of athletic feats in the bed. The exstrophied bladder had receded within the abdomen. It seemed that the scar following the drainage had contracted and the bladder had worked its way back into the abdomen and did not protrude again even when the patient vomited. There was no hernia, and the opening corresponding to the former location of the bladder barely admitted one finger.

CASE 12.—A boy, aged 4 years, a feeble child, with exstrophy of the bladder, and extensive prolapse of the rectum which had to be replaced after every bowel movement, was operated on, Nov. 24, 1928, number 10 ureteral catheters being used. The time required was one hour and forty-seven minutes. The patient returned from the surgery in good condition, both catheters draining slightly bloody urine. On the first postoperative day the right catheter drained poorly; a stylet was inserted. On the second and third days the catheters were irrigated and the patient took albumin water. The stylet was used again to open the right catheter on the fourth day, and on the fifth the bowels moved well, and the patient took nourishment. The urine appeared in the rectum on the eighth day, and the catheters were removed. On the seventeenth day the patient was drowsy a good deal of the time, probably on account of high fever. On the twentieth day he vomited his breakfast, and on the thirty-seventh he vomited his dinner. On the fortieth day the temperature was normal and the patient was up in a chair. On the forty-first day there was a slight rise of temperature, after which time it remained normal.

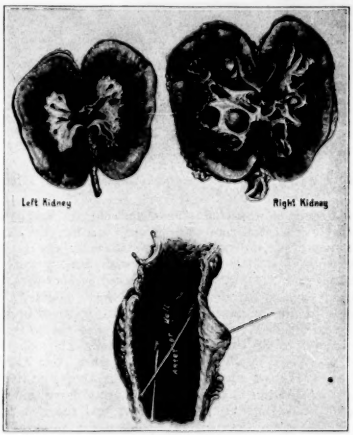

Fig. 1 (case 7).—Postmortem specimens showing a normal left kidney and ureter and a dilated right kidney and ureter, with ureteral openings containing probes entering the intestine on its anterior wall.

The patient was discharged on the fifty-sixth postoperative day. During the last two weeks the patient made rapid improvement, but the temperature rose to 100 occasionally. Feb. 9, 1929, Dr. Bapty wrote: "For a whole week he has been dry every night. The color is slowly coming back to his cheeks and by summer I hope to see him well and strong." May 22, his mother wrote: "My little son Thomas is progressing wonderfully. He is much better and does not sway or stoop when he walks as he did formerly. His bowel control is very good." She brought the child down for the clinics. The weight had increased and the color was improved. There was no prolapse of the rectum after the operation. The mother stated that she had to get the boy up once at night and that he soiled his clothes only at night or when he became intensely interested in his play, or excited.

CASE 13.—A man, aged 48, with infiltrating carcinoma of the bladder, was operated on, Jan. 8, 1929, number 12 catheters being used, in two hours. Advanced carcinoma was found infiltrating the bladder wall, the trigon, and connective tissue on each side of the bladder, too far advanced for complete cystectomy. The ureters were moderately dilated.

On the first postoperative day, bloody urine appeared from the right catheter; the left catheter was not draining. It was

therefore irrigated with boric acid solution. On the third day, both catheters drained clear urine; a glycerin suppository was given; some gas was expelled. At night the patient vomited. On the fourth day the patient coughed and expectorated. He took broth on the fifth day, and on the sixth, the bowels moved well. For the next five days the patient had the hiccups a great

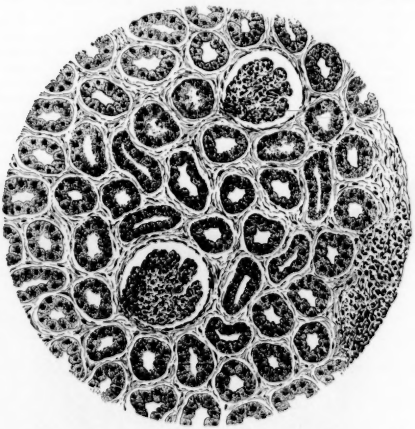

Fig. 2 (case 7).—Typical microscopic section from left kidney.

deal; he was in a partial stupor and slightly delirious; he perspired a great deal, and was obviously uremic. On the 13th day he improved; the catheters were removed. On the seventeenth day the bladder was opened with cautery under gas anesthesia, and 100 mg. of well screened radium was introduced directly against the growth for thirty hours. On the twenty-third day the patient had two chills, followed by a temperature of 104. After this the progress was uneventful. On the thirtieth day he was up on a back rest. He took amidopyrine to relieve pain. On the thirty-eighth day, 2,500 mg. hours of radium was given, and he was discharged on the fifty-second postoperative day. The growth was diminishing. He returned, July 9 and 11, for the clinics and reported that he was taking less amidopyrine. "He holds the urine well. There is marked recession of the growth and the patient is gaining in weight."

CASE 14.—A man, aged 51, with carcinoma of the bladder, entered the hospital, July 4, 1929. The hemoglobin was 55, and the leukocytes numbered 14,000. There was a great deal of distress in the bladder. July 5, a direct blood transfusion of 500 cc. was made. The hemoglobin was brought up to 80 as a result of the transfusion. An operation was performed, July 9, during the clinic. The time required was two hours and seven minutes. A large infiltrating mass involved the right side of the bladder, which contained the right ureteral opening. The growth was firm, and was fixed in the connective tissue of the pelvic cavity. A cystectomy was impossible. Therefore, the ureters were transplanted with the view of using radium later. Number 12 catheters were used. The left ureter was moderately dilated. The right ureter was tortuous and dilated to the size of a man's finger and distended with clear fluid. Its wall was very thin. After it was slit, it collapsed into a small mass. The patient was not at all shocked by the operation, was never nauseated, and recovery was entirely uneventful. On the fourteenth postoperative day the bladder was opened with a cautery; 4,100 mg. hours of radium was screened and distributed over the cancerous area and held against the growth by gauze packed in the bladder. During the following days the patient had some rectal distress, which was apparently due to the radium. He was out in a wheel chair on the thirty-second day, and on the forty-first he was discharged, the drainage wound having practically healed. October 7, he returned for a check up. Cystoscopic examination revealed an open crater on the right side of the bladder about an inch long, half an inch wide and about as deep. The remainder of the bladder wall, which had been involved with cancer and treated with radium, appeared as a white scar. October 12, the bladder was reopened suprapubically and a 50 mg. tube of radium, well screened and sewed in gauze, was buried in this crater for forty hours and held in place by packing the bladder full of gauze. Pain was relieved by morphine in the meantime.

CASE 15.—A woman, aged 24, who had been married for four years but had not had any marital relations, had exstrophy of the bladder. Her general health was fair. The systolic blood pressure of 168 indicated impaired kidneys. June 15, 1929, the kidney function was tested. The right catheter was passed with ease, but the left could be passed only an inch when a stricture was encountered. Urine was collected from both kidneys. Color appeared in four and one-half minutes. This examination was followed by a great deal of pain in the right kidney; also by fever. The patient entered the hospital July 6, with a temperature of 99, and was menstruating. An operation was done, July 11, during the clinic. The time required was two hours and eight minutes. When the abdomen was opened, a large retroverted uterus was found and lifted up. There seemed to be no round ligaments. The ureters were somewhat dilated and thickened. Number 12 ureteral catheters were used. At the close of the transplantation operation, the bladder was removed. The wound bled freely and was packed with gauze as there were no large vessels. Nevertheless, the bleeding progressed to such an extent that a blood transfusion was given. On the first postoperative day, the urine from the catheters was slightly tinged with blood. The patient vomited. On the third day the urine was clear, and the patient took liquid nourishment. On the seventh day, she vomited green fluid. The right catheter was loose and was removed on the tenth day, and on the twelfth, the patient vomited undigested food. On the fifteenth day the left catheter was removed, and on the twenty-second, there was a slight chill. A great deal of pus was discharged through the drainage wound, which healed rather slowly. Later on, after the wound has healed, it is

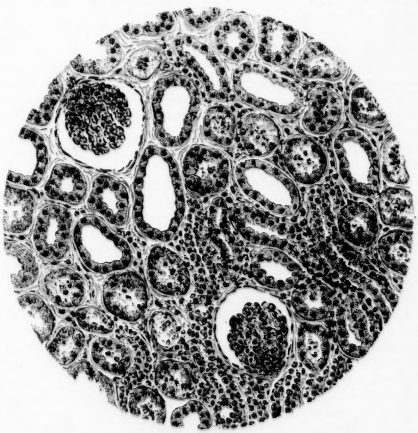

Fig. 3 (case 7).—Typical microscopic section from right dilated kidney.

the intention to bring the vulva across over the fibrous pubic arch. This should restore the sex organs to practically normal. The patient was discharged, September 22.

CASE 16.—A girl, aged 4, had exstrophy of the bladder, an imperforate anus and a rectovaginal fistula. An attempt by another surgeon to establish an anus resulted in a second

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sphincterless opening. The operation was performed, July 12, during the clinics. The time required was two hours and five minutes, number 8 catheters being used. A larger one could not be introduced. A large fecal impaction was found in the sigmoid. This was gradually worked downward and out through the rectovaginal fistula. The bowel was then cleansed in the usual way. At this time it was decided to transplant the ureters high and at a later operation to cut the rectum below the implanted ureters, turn in the ends of the bowel above and below, do a colostomy, and use a colostomy bag. The transplantation operation, after the bowel had been cleansed, proved to be easy. The patient vomited considerably for the first two days; she had a severe cough. By the fifth day the bowels were moving well. On the sixth day she was taking liquid nourishment, and on the eleventh, the catheters were removed. The patient made an uneventful recovery and was discharged on the thirty-first postoperative day. She returned, August 27, much improved in health and appearance, but the mother complained that the child screamed loudly and strained when the bowels moved. Examination under anesthesia revealed a urinary calculus in the rectum the size of a black walnut which could not be extruded through either fistula. It acted as a ball valve. It was crushed and removed. The ectopic bladder is much less inflamed than before the operation. Care of the child is much easier, and the mother is of the opinion that the operation is well worth while even if nothing else is ever done. She returned again, October 22, in perfect health.

CASE 17.—A woman, aged 25, unmarried, had an ulcerating contracted bladder, probably due to tuberculosis. She had arrested pulmonary tuberculosis. The right kidney was removed four years before. Cystoscopic examination revealed small ulcers in the bladder; the bladder wall was principally made up of scar tissue, the bladder holding less than 2 ounces. Urination was frequent and painful. The kidney function was normal. The urine contained a few hyaline casts. The diagnosis of probable tuberculosis of the bladder was made. The operation was done, July 20, 1929, in one hour and fifteen minutes. The left kidney was examined and found to be unusually hard and contracted, with positive evidence of nephritis. The ureter was dilated about twice its normal size. Its mucous membrane was definitely inflamed. The operation was easy, being about thirty minutes shorter than when the two ureters are transplanted simultaneously. Recovery of the patient was entirely uneventful. A number 12 catheter came away on the tenth postoperative day. The patient was up and around the room on the twenty-fourth day, and on the thirtieth she was discharged. The patient was entirely relieved from all bladder distress with which she was suffering when she came in. She stated in a letter, October 18, that she was entirely relieved and seemed to be in perfect health.

CASE 18.—A man, aged 46, had a tuberculous bladder. In November, 1925, a right tuberculous kidney was removed. In September, 1927, the left testicle was removed for tuberculosis. The bladder was entirely tuberculous, holding about 50 cc. The patient was in constant agony. The kidney function was normal. The operation was performed, July 22, 1929, in two hours and twenty-five minutes. The left kidney was found to be about one-third larger than normal. It was smooth. The enlargement was probably compensatory hypertrophy. The ureter was distended to the size of a man's index finger and was tortuous in its course; the wall was thin; there was no evidence of interstitial or mucous membrane involvement; therefore, tuberculosis of the left kidney seemed improbable. The bladder was a large tuberculous mass, half filling the pelvis. The patient was fat and the mesentery of the sigmoid was fat, making it impossible to transplant the ureter into the deep pelvic colon as is ordinarily done; it was transplanted into the sigmoid, a number 12 catheter being used. Recovery was uneventful. The drainage wound healed rapidly and the patient was up in a chair on the twentieth day and discharged on the twenty-eighth postoperative day, completely relieved of all the bladder symptoms. A later report shows that the patient, who is a preacher, is again able to occupy his pulpit.

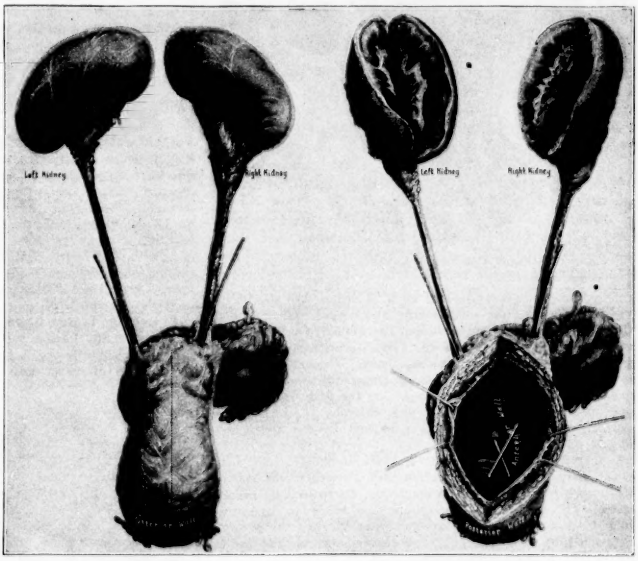

Fig. 4 (case 8).—Postmortem specimens: kidneys normal in size and contour and fairly normal in macroscopic section; ureters entering intestine on anterior wall.

CASE 19.—A woman, aged 56, unmarried, an American teaching in Saloniki, Greece, had carcinoma of the bladder. The diagnosis was confirmed by cystoscopic examination. The operation, Aug. 22, 1929, done in one hour and fifty-seven minutes, revealed the growth to be more extensive than was suspected. It involved the base and neck of the bladder. The condition was apparently ideal for destructive radium treatment. The ureters were somewhat dilated and slightly thickened. Number 12 catheters were used. After the right catheter was fastened in the ureter, it was discovered that the catheter did not extend over the psoas muscle, not quite so far as usual, but no fear was entertained as to results. The left catheter began to drain immediately. The right catheter was dry. At 3 p. m. the right catheter was irrigated with boric acid solution. A few drops returned, probably only solution. The patient complained of pain in the right kidney region. At 8 p. m. a stylet was passed but no urine was returned. After this, boric acid solution was injected but did not return. During the night the patient complained of general pain in the back, being more marked in the right kidney region. Twenty-three hours after operation the patient was taken to the oper-

ating room, and through a loin incision the fatty capsule of the kidney was opened, the finger being passed along the muscle wall until the ureter was felt, when it was brought backward with a small flat curved retractor. The ureter was somewhat dilated and seemed congested; it was slit with a sharp knife, and a few drops of turbid urine escaped. A small baby soft

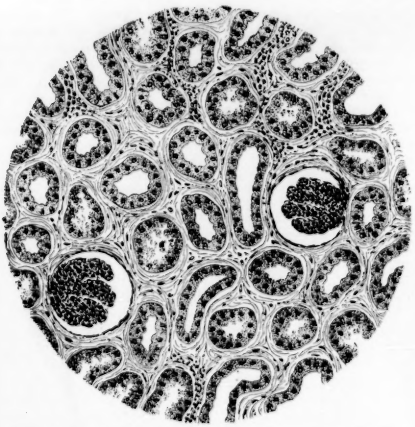

Fig. 5 (case 8).—Typical microscopic section from left kidney.

rubber catheter was introduced about 2 inches into the pelvis of the kidney. Four small gauze wicks were placed around the catheter to hold it in place and two sheets of rubber tissue around this to provide drainage. The operation required only a few minutes, and there was no shock. The catheter began to drain a few drops of turbid urine, but within two hours clear urine was coming from the kidney. On the fifth postoperative day, methylene blue (methylthionine chloride, U. S. P.) was introduced through the distal right ureteral catheter and immediately came through the dressings. Several ounces of water was then run through this ureter. The loin catheter and gauze wicks were removed. The second day afterward, the rubber tissue was removed and the wound was left to heal by granulation. This procedure is much simpler and much less dangerous than to deal with an obstructed catheter through the rectum. September 6, 4,500 mg. hours of radium was applied inside the bladder through a suprapubic cystotomy wound and held in place by packing the bladder with gauze. The patient is now in the hospital for application of 2,500 mg. hours in the vagina.

CASE 20.—A boy, aged 6, had exstrophy. The ureters were sufficiently dilated to admit number 12 catheters easily. The operation, Aug. 22, 1929, was performed more quickly than any I have ever done in such a case, one hour and twenty-five minutes. One complication was encountered: The peritoneum on the left pelvic wall was very thin, and while it was being drawn over to the intestine the stitches tore through it, leaving a breach at the upper end of the left posterior peritoneal incision which could not be satisfactorily covered. Both catheters began to drain immediately and freely. On the first postoperative day the patient was nauseated and vomited several times. On the second day the vomiting continued; the stomach was washed and a large amount of dark fluid was recovered; the pulse was weak and rapid; no gas escaped from the rectum, only a slight bloody oozing. Distention was rapidly increasing. The stomach was washed and more foul fluid was found. The patient was taken to the operating room, August 25, on the second postoperative day. The abdomen was opened through a right rectus incision. There was no evidence of peritonitis. The cecum and all the lower half of the small intestine were found collapsed. It was of normal pink. The upper portion of the small intestine was enormously distended and was purplish. As was feared, when the hand was passed over to the left pelvic wall it was found that the intestine had adhered to the one raw surface left exposed. This was easily separated. The small intestine was brought to the surface and the intestinal contents were stripped down through the small intestine into the cecum. As no gas or intestinal contents had passed through the rectum, it was feared that the contents of the ceum might not readily pass out through the rectum. Therefore a stab wound was made in the cecum and in the emergency a convenient perforated soft rubber T tube was hurriedly dropped into the cecum and the cecum brought up into the wound as with a cecostomy. Some bloody fluid escaped. The distention was relieved. During the night, some gas and intestinal contents passed out through the tube. The next day, August 26, the fourth postoperative day, the upper portion of the abdomen was again distended. The stomach was washed, and 600 cc. of dark fluid was found. The patient was again taken to the operating room and under local anesthesia, a loop of jejunum was brought to the surface and a catheter inserted by submucous implantation. At this time the disturbing observation was made that the small intestine had grouped itself around the cecostomy and adhered in a mass. A certain amount of fluid escaped from the catheter in the jejunum. Soon dextrose was introduced, 100 cc. at a time; 250 cc. at the same time was introduced through the cecal tube. During the night brown fecal matter began to escape through the cecal tube when it was unclamped. During the fifth postoperative day, fluid began to flow freely through the rectum. The fluid taken into the jejunum rapidly passed into the cecum, apparently digested. There was no more vomiting, and no marked distention. Throughout the fifth postoperative day and night the bowels moved well; the temperature was normal; the pulse was fairly rapid but good. The catheters drained a normal quantity of perfectly clear urine. During the last, or sixth, twenty-four hour period, the discharge of clear urine from the kidneys was: right, 205 cc.; left, 275 cc. Everything went well until the afternoon of the sixth postoperative day, when the stool suddenly became greenish, as was the discharge from the cecostomy tube. Late in the afternoon of this day, August 28, the patient suddenly began to fail, the temperature rose to 105.6, and at 10:45 p. m. he died. The postmortem showed that the

Fig. 6 (case 8).—Typical microscopic section from right kidney.

small intestines were firmly fixed around the cecum. In the center of the mass was an abscess. In the abscess was the end of one of the arms of the rubber T tube, which had turned crosswise and by pressure necrosis had penetrated the wall of the cecum. The kidneys were removed and were examined by the pathologist, who found them entirely unharmed.

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SUMMARY

Twenty cases are reported as follows: cancer of the bladder, eight; exstrophy, eight; tuberculous bladder, two, and incurable vesicovaginal fistula, two.

Cancer of the Bladder.—In three hopeless cases (2, 7 and 8) of metastases, the operation was satisfactory for the relief of bladder distress:

Patient 2 died eight months after operation of general metastases. There was no evidence of kidney trouble at any time. Postmortem examination was not made.

Patient 7 died seventy-five days after operation of general metastases which had encroached on the bowel at some point above the implantation. The kidney function seemed perfect to the end. A postmortem specimen showed the right kidney dilated and seriously injured; the left kidney was almost normal. The valve action was good.

Patient 8 died 290 days after operation of general metastases. Kidney function was apparently perfect to the last. A postmortem specimen was preserved and a color picture made. Macroscopically, the kidneys were practically normal for one of 55 years of age. Microscopically, the parenchyma was badly injured. The right ureter, which was dilated at the time of operation, had diminished since the operation. The left ureter was normal in size at postmortem. The valve action was good.

In case 6, hopeless because of the extent and duration of the cancer, a tremendous dosage of radium has been used by which the bladder has been completely destroyed and the growth has been kept down locally, so that the patient is still comfortable and his blood picture is better than when he was operated on a year ago.

In two cases (13 and 14) of cancer infiltrating the base of the bladder, no remote metastases were discovered:

Patient 13 took drugs to relieve his pain before operation. He still takes amidopyrine. He has gained weight. The cancer is diminishing after radium treatment.

Patient 14 has been relieved of the bladder distress and is gaining in health.

In case 5, total cystectomy was done a year ago. The patient is still well.

In case 19, in which there is a cancer of the base and neck of the bladder, 7,000 mg. hours of radium was used (4,500 in the bladder and 2,500 in the vagina). The patient is still in the hospital. A cure is expected.

Exstrophy of the Bladder.—Patient 20 died a surgical death following operation. Patient 1 was reported well two years after operation but died of acute colitis two years and five months after operation.

Five patients (3, 10, 11, 12 and 16) recovered and are now well and comfortable.

In case 15, in which a cystectomy was also performed, the patient is still in the hospital awaiting complete closure of the drainage wound before the operation for closure of the skin over the pubic arch is performed. The general condition is good.

Tuberculous Bladder.—In two cases (17 and 18), in each of which one kidney had been removed and a tuberculous bladder remained, the patients are comfortable.

Incurable Vesicovaginal Fistula.—In two cases (4 and 9), the patients are well.

DISQUIETING INCIDENTS

Fever.—Abnormally high postoperative temperatures have been observed in seven cases: The high temperature has been attributed in two cases (10 and 15) to lighting up of a preexisting pyelitis; in one case (3), to pyelitis resulting from infection following accidental puncture of the rectum with a sigmoidoscope; in one case (6), to retroperitoneal infection from a ureteral leak caused by excessive traction in removing a catheter. In the other three cases, no cause has been assigned.

Chills.—Four patients had definite chills: In case 3, the chill was attributed to intravenous introduction of dextrose; in case 6, to a leaking ureter in the retroperitoneal space; in case 13, it was uncertain as to whether it was due to radium or pyelitis. In case 15, the chill was due to preexisting pyelitis which before operation had been sufficiently severe to cause chills.

Pain.—In five cases (3, 4, 5, 10 and 18) there was pain in the kidney region: In cases 4, 5 and 18, pain occurred at the time the catheters began to loosen and disappeared after the catheters were removed. In case 3 the pain was likely due to pyelitis. In case 10 there were two left ureters with double kidney pelvis, in one of which apparently pyelitis was present at the time of operation.

There have been five major accidents or misfortunes worthy of note, which may be attributed to the human frailty of those conducting the operation. In case 3, a sigmoidoscope was passed through the rectal wall carrying infection into the field. In case 5 there was sloughing of the right breast following subpectoral infusion. In case 6, too much traction was made on the ureteral catheters, which had become blocked, thereby disturbing the anastomosis and causing a urinary fistula. In case 19 the right ureteral catheter became blocked. This was thought to be due to failure to introduce the catheter past the psoas muscle. In case 20 there was an intestinal obstruction caused by an unrepaired break in the peritoneum over the left psoas muscle. After the obstruction had been removed, the pressure of the cecostomy tube made an opening which resulted in local peritonitis and death.

REMEDIAL SUGGESTIONS

1. Traction on the catheters for the purpose of detaching them from the bowel should be avoided.

2. The assistant who prepares and packs the bowel should be familiar with the use of the sigmoidoscope.

3. The inlying ureteral catheter should extend well above the psoas muscle probably to within 2 inches of the kidney pelvis and possibly to the pelvis itself.

4. The catheters occasionally become blocked with mucus, small blood clots and other débris. This may usually be cleared by syringe, with 2 per cent boric acid solution. To avoid carrying infection upward, the discharging ends of the catheters are kept in bottles containing 1 : 1,000 solution of mercuric chloride.

5. To lessen the danger of incrustation in the lumen or at the eye of the catheter, sodium biphosphate may be given.

6. If a catheter is completely blocked for twenty-four hours, nephrostomy or high ureterostomy should be performed.

7. In case an unrepaired breach in the peritoneum is left as was done in case 20, it is suggested that an extra sheet of gutta percha tissue laid over the space and extended outward with the quarantine might forestall an intestinal obstruction.

MORBIDITY

There has been no demonstrable evidence of serious postoperative kidney infection or peritonitis, as not infrequently occurred with the former two stage submucous transplantation without tubes. With a ligature firmly tying the ureter to the catheter above the rubber cuff and the ends of the catheters draining into 1 : 1,000 solution of mercuric chloride there is no possible way in which infection can enter the ureter or kidney directly. After the rectum has been isolated with a clamp, cleansed with solution and dried with gauze, and after the incision in the wall has been made between traction loops, a quarantine completely segregating and draining the operative area practically eliminates peritonitis.

There has been no demonstrable evidence of permanent injury to the kidneys in any of the twenty cases which could be definitely attributed to the operation. In each of the two cases (7 and 8) in which postmortem specimens were examined, the right kidney showed marked degeneration. However, it will be noted that in each case the cancer was located in the right side of the bladder involving the ureteral opening and producing marked dilatation of the ureter above at the time of the operation. There was extensive enlargement of the lymphatic glands along the course of each of these right ureters at the time of the operation, and the ureters lay in a bed of metastatic cancerous tissue at the postmortem. It may safely be presumed that these kidneys were already damaged and without operation would probably have been even more seriously involved. The observation in these two cases led to the suggestion that the first duty of the surgeon, after the abdomen is opened and before intestines are packed out of the field, is to palpate both kidneys carefully and make an accurate record of their condition.

MORTALITY

In twenty cases there has been one surgical death, 5 per cent mortality. This could not be considered high mortality for such an extensive operation on handicapped patients, but it is humiliating for me to know that death was not due so much to the inherent danger of the operation as to a defect in my application of the general principles of abdominal surgery.

MAGNITUDE OF OPERATION

The average elapsed time from the beginning of the first incision to tying the last suture in twenty cases was two hours and fourteen minutes, divided approximately as follows: twenty-two minutes for opening the abdomen and preparing the rectum; twenty-two minutes for closing and applying the dressings; one hour and thirty minutes for the actual performance of the double transplantation. The average elapsed time for the last ten cases was one hour and fifty-nine minutes. The time required for transplanting a single ureter is about thirty minutes less.

After the intestines are packed away out of the field, the manipulations are delicate and shockless and require a minimum of anesthesia. There should be no serious shock connected with this operation. Therefore, accuracy should be the chief desideratum. While the technic of this operation is far more exacting, the inherent danger is incomparably less than that of such major abdominal operations as subtotal gastrectomy for cancer of the stomach or the main operation in radical removal of the rectum for cancer. The total elapsed time is about the same in the three operations.

CONCLUSION

I believe that this operation is now complete in principle and that it is applicable for all conditions in which it is necessary or advisable to dispense with the bladder as a reservoir for urine. It is justifiable in the following cases:

1. Exstrophy of the bladder.
2. Incurable cancer of the bladder with a life expectancy of more than six months in which morphine or a palliative cystostomy is required.
3. Inoperable carcinoma of the base of the bladder or prostate in which large doses of radium are required in order to justify a hope of cure.
4. Certain cases of early removable carcinoma in which fulguration and similar agencies are now used.
5. Incurable tuberculosis of the bladder in which one kidney has been removed and the other remains free from tuberculosis.
6. Tuberculosis of the prostate and seminal vesicles with or without perineal fistulas.
7. Incurable vesicovaginal fistulas.
8. Extensive, incurable, multiple perineal fistulas resulting from various causes.
9. Certain cases of painful, contracted bladder resulting from infection or ulceration.
10. Traumatic injuries which make the use of the bladder impracticable.

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HERNIA OF THE DIAPHRAGM IN CHILDREN *

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It seems appropriate that the subject of diaphragmatic hernia should be discussed before the Section on Diseases of Children. The activities of pediatricians begin at the foundation of life. Nature's imperfections are carefully charted in the records of their patients. No anomaly within range of vision escapes detection. Yet search for internal defects is made only when there is evidence that leads one to suspect their presence or during an exploration of one of the body cavities either by operation or at autopsy. Unless the roentgen ray is used in the examination of children, anomalies of congenital origin, such as those of the diaphragm, remain concealed, and until at least a fluoroscopic examination of infants is made as a routine, we shall not know the incidence of either eventration or congenital hernia of the diaphragm.

The diaphragm, dormant during fetal life, responds at birth. It ushers in the phenomena of extra-uterine life. It compresses the ductus arteriosus of the newborn, thereby diverting the current of blood into the two branches of the pulmonary artery, each of which goes to the lung on its respective side. Having the quality of constant activity, the diaphragm serves as a muscular partition between thorax and abdomen. It is the automatic governor of respiration, the energizing force behind food absorption and waste elimination. By its rhythmic wave pressure it exercises a supporting and modifying influence on the circulatory system, lessening the tendency to arterial rupture and aneurysm

* Read before the Section on Diseases of Children at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 10, 1929.

which is "one-tenth as frequent in the abdominal as in the thoracic aorta." During contraction of the diaphragm the venous blood within the abdomen is hurried forward into the inferior vena cava toward the right auricle. The mesenteric, gastric, splenic and pancreatic veins, however, are not affected by diaphragmatic pressure. Their contents, enriched by absorption from the digestive tract, are diverted to the portal vein and subjected to the peculiar action of the liver, and thence to the inferior vena cava. The lymphatic duct is influenced by this pressure as it empties its contents into the subclavian vein. Lemon's article,[1] which has appeared among the collected papers of the Mayo Clinic for 1928, is an outstanding contribution on the function of the diaphragm, especially in its relation to the action of the thoracic wall and the muscles of the abdominal wall.

In experiments on dogs I have confirmed Lemon's observations that the vital function of respiration is not entirely contingent on the innervated diaphragm. When I severed the right phrenic nerve one week after a left phrenic neurectomy, the animal was subjected to a prolonged period of intense struggle during which the abdominal muscles appeared to become the principal compensatory mechanism in sustaining respiration. At the end of a week the dog appeared less active than normal, but a month later he ran about as if uninjured and his respiration seemed not to be embarrassed in any way. Nevertheless, there can be little doubt that in lessened diaphragmatic activity there is retardation of development of the musculature of the diaphragm, a reduction in the range of lung expansion, a tendency to alterations in the liver, and a subnormal activity in the organs of digestion. These repressions of function have been observed in animals that have been taken out of their natural environment and caged. Few can survive the inhibition thus forced on the diaphragm and on the use of the forward extremities so constantly employed in their predatory habits. Animals that flourish in tropical forests languish and decline in an atmosphere of restrained activity. The galloping wild horse of the circus formerly was the only animal in the outfit living according to nature's laws and he alone retained his beauty, speed and endurance. The law of development applied to muscular structures is such that volume and strength are dependent on exercise. In this respect, what nature does for the lower animals it also does for man. Hence there falls on those who are engaged in charting the backbone of childhood a responsibility for the evolution of the diaphragm which, when intact and well developed, is a force "without approach or parallel in the muscular system." In embryonic life this important fibromuscular partition carries a well recognized liability of failure to close its component segments. The resulting defects in pleuroperitoneal separation permit intrusion of abdominal viscera to a degree that may be of minor or major consequence. There is reason to believe that the aperture of congenital origin sometimes participates in the diaphragmatic hernia of later life.

It is rare to find an author expressing the view that acquired hernia is of congenital origin. In Johnson's case, referred to later, this relationship was suspected. Eppinger [2] regards as acquired only those in which there is a definite history of traumatism and he classes all others as congenital. My experience is in harmony with this view as far as it goes. It is my belief that after those cases are eliminated in which hernia is produced by stab wounds and gunshot injuries of the diaphragm, the vast majority remaining are of congenital origin. In 433 case reports compiled by Grosser [3] in 1899, mainly from autopsy, a congenital origin could be demonstrated in 232. While this is more than 50 per cent, the incidence of congenital hernia is probably much greater. Furthermore, there is now reason to believe that the high diaphragm termed eventration, observed in adults, is best accounted for by congenital defects or by injury to the phrenic nerve at birth. The following case is an example of the latter:

CASE 1.—W. F., an infant delivered after breech presentation with difficult labor, was admitted to the hospital when 6 weeks old because of intermittent attacks of cyanosis and dyspnea.

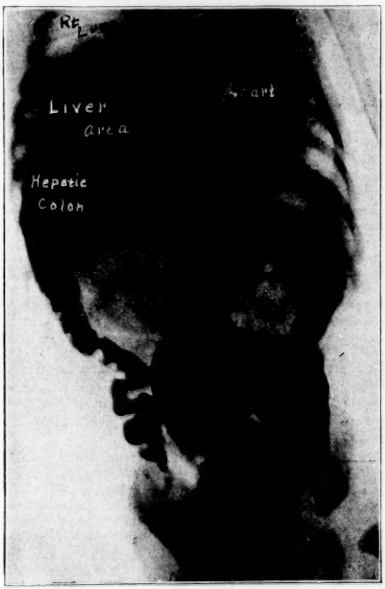

Fig. 1.—Eventration of right diaphragm from paralysis of right phrenic nerve during birth. The dome of the liver is on a level with the third rib, the right lung is collapsed and the heart is displaced to the left.

These attacks came on whenever the child cried. Elevation of the head and chest brought relief. Physical examination by Dr. George King revealed a right brachial paralysis and dulness to percussion over the right side of the chest up to the third rib in front. The respiratory murmur was absent over this area. The heart was displaced to the left. The clinical diagnosis was congenital hernia of the right leaf of the diaphragm with intrusion of the liver into the right pleural cavity and collapse of the right lung.

Roentgen examination showed the dome of the liver on a level with the third costal interspace, the right lung collapsed, the heart displaced toward the left, and compression of the left lung (fig. 1). A barium enema revealed the hepatic flexure of

1. Lemon, W. S.: The Function of the Diaphragm, Arch. Surg. **17**: 840 (Nov.) 1928.
2. Eppinger, H.: Suppl. Nothnagel's Spezialle Pathologie und Therapie, Vienna, 1911, p. 132.
3. Grosser and Thoma: Virchows Arch. f. path. Anat. **81**: 515, 1882. Grosser: Wien. klin. Wchnschr. **12**: 655, 1889.

the colon extending up to the seventh rib. The fluoroscopic examination, however, demonstrated a "paradoxical" action of the diaphragm, which altered the interpretation from hernia to eventration.

The infant died in the tenth week during an attack of cyanosis. Autopsy confirmed the presence of eventration of the right diaphragm, with displacement of organs as described (fig. 2). The right phrenic nerve was intact, but the possibility of avulsion of the nerve roots at their source unfortunately was not considered. When I commented on the limitation of my observations in the examination of the right phrenic nerve at autopsy before Dr. H. R. Viets, a neurologist, he suggested that, had the examination of the nerve been extended to the cervical spinal cord, no doubt I would have found it detached at its point of origin. Therefore the eventration was probably due to avulsion of the phrenic nerve occurring coincidentally with the right brachial paralysis.

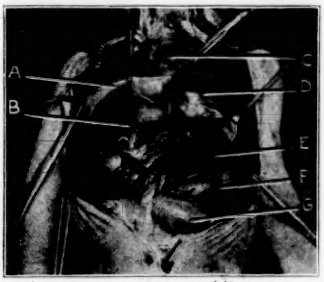

Fig. 2.—The chest at necropsy, showing paralysis of the right leaf of the diaphragm. With the diaphragm split the liver is observed just below it, on a level with the third rib, and with the heart displaced to the left: *A*, diaphragm; *B*, liver; *C*, thymus; *D*, heart; *E*, liver; *F*, stomach; *G*, intestine.

This case demonstrated, first, a paralysis of the right phrenic nerve concomitant with an obstetric paralysis of the right arm: secondly, an eventration of the right side of the diaphragm, and, thirdly, the value of the fluoroscope in such cases in differentiating eventration from hernia of the diaphragm.

Another type of eventration from injury to the phrenic nerve by pressure was observed in an adult who had recurrent cancer of the left breast:

CASE 2.—E. G., a woman, aged 47, had been operated on four years before for cancer of the left breast. April 2, 1929, she returned to the hospital complaining of vague pains throughout the chest and upper part of the abdomen. There was no external evidence of recurrence of cancer.

Fluoroscopic examination revealed paralysis of the left diaphragm with the "paradoxical" action characteristic of eventration. A roentgenogram showed mediastinal metastasis (fig. 3).

SYMPTOMATOLOGY

The manifestations of diaphragmatic hernia vary widely from a mild cough and slight degree of indigestion to most serious interference with the function of the heart, lungs and gastro-intestinal tract. There is little doubt that hernia of the diaphragm can exist for a lifetime without symptoms. It may not cause disturbances of a character severe enough to prompt the patient to consult a physician. I find it equally true that symptoms appearing in adult life demanding treatment can be traced to a defect in the diaphragm which has existed in some form since birth. The symptoms at birth depend on the extent of displacement of organs in the peritoneal and pleural cavities. If the stomach alone is involved and only the cardiac portion slides up and down through an opening near the esophagus, the symptoms may be so mild as to escape detection. If the entire stomach is in one side of the chest, however, its periodic distention will embarrass heart action, causing cyanosis, dyspnea, rapid respiration and cough. There may be vomiting, or unsuccessful attempts to empty the stomach. When the small or large intestine or both have ascended into the pleural cavity, symptoms referable to disturbed intestinal function are added to those already mentioned. There is interference with peristalsis from a mild degree of constipation to stasis and finally acute intestinal obstruction. Physical examination usually reveals a distended chest with reduced expansion and wider separation of ribs on the affected side. The abdomen is sunken; the heart is displaced to the opposite side. There is partial or total collapse of the lung on the side involved, and a variety of weird sounds are audible with the stethoscope. Deglutition and digestion may or may not be affected. In older children with diaphragmatic hernia, vomiting is seldom productive. When it is, it may be projectile.

Greiwe [4] reports the case of a child, aged 5 years, whose constant symptoms were cough, vomiting and constipation. It was necessary to limit the diet to liquids. An examination showed the stomach in the chest. Nothing was done.

These facts point to dysphagia as one of the common symptoms, probably due to torsion of the lower end of the esophagus.

DIAGNOSIS

As a cause of death in children, diaphragmatic hernia is likely to be more common than any mortality statistics would lead one to believe. On the average, autopsies are done less frequently on children than on adults; and when there is no autopsy there is no proof of diagnosis. Symptoms of diaphragmatic hernia are often so bizarre and bear resemblance so closely to the expressions of other diseases of the heart, lungs, stomach, gallbladder and intestines that this deformity is not among the examiner's thoughts when he makes the diagnosis by elimination. Cyanosis, for example, occurring soon after birth is so often a manifestation of congenital heart disease that any other cause is seldom considered. Yet cyanosis is an invariable accompaniment of congenital hernia of the diaphragm and differs clinically from that due to heart disease. It is less constant, occurs in attacks, is more likely to appear with crying spells, and is promptly relieved by changing the patient's posture from the

Fig. 3.—Paralysis of the left diaphragm from pressure on the left phrenic nerve from metastatic cancer nodes in the mediastinum four years after operation for breast cancer. Seesaw action of the diaphragm was observed during respiration.

4. Greiwe, J. E.: Report of a Case of Diaphragmatic Hernia, Arch. Pediat. **37**: 593-599 (Oct.) 1920.

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recumbent to the erect, or by the passage of a stomach tube. The cough associated with congenital hernia of the diaphragm is peculiar. It may be mistaken for bronchitis, pneumonia or whooping cough. While it comes on in paroxysms, it is invariably relieved by putting the patient upright. Furthermore, it lacks the characteristic "whoop" of pertussis. So fantastic are the chest symptoms and physical signs that one eminent diagnostician interpreted his observations in a case of diaphragmatic hernia in a boy aged 5 years, as moderately advanced pulmonary tuberculosis. The one essential thing in connection with hernia of the diaphragm is always to have it in mind during a physical examination. The roentgen ray can be depended on to clear up the diagnosis.

TREATMENT

There is no unanimity of opinion as to the treatment of diaphragmatic hernia in early life. New material for thought and consideration appears frequently to unsettle deductions that have appeared accurate and final.

Ruptures of the diaphragm from stab wounds and gunshot injuries are limited to adults and form a separate group. These openings are in the nature of perforations or lacerations with intrusion of the omentum and intestine.[4] Surgical treatment is clearly indicated in these cases. In the traumatic hernias from external violence, a congenital origin may be found if one looks for it. There is little doubt that it lurks in the background as an antecedent of most diaphragmatic hernias seen in adults.

Experience is so varied that it is difficult to decide how to treat hernia of the diaphragm at all ages, especially among infants and those of advanced years. Woolsey [5] operated successfully on an infant 35 days old. Although the patient nearly died during the operation, and in spite of the fact that a mechanical respirator was not employed when administering the anesthetic, the immediate outcome of the procedure was a success. This patient and two others, who were 63 years old, operated on successfully by Harrington, provide satisfactory evidence that the operation of repair, in the absence of acute intestinal obstruction, can be done with reasonable safety at any period of life. Only by following up those cases in which the diagnosis of diaphragmatic hernia has been established early in infancy can one determine how sweeping a statement should be made in advocating surgical intervention.

In this connection the report of a case by Stimson [6] of New York appears to have special significance. I regard it and other reports of its kind as important evidence in the evaluation of patience and medical treatment.

A boy, aged 11 months, was seen first at the Cornell Clinic, Aug. 11, 1922. September 1, roentgen examination revealed the stomach in the right side of the chest. September 5, roentgenograms were taken with the stomach tube filled with barium. October 13, a fluoroscopic examination showed the entire stomach in the chest, but no obstruction. October 14 there was violent vomiting. October 21, the patient was admitted to the New York Hospital with complicating bronchitis. No operation was indicated.

In his notes at that time Dr. Stimson stated that the plan was to continue the expectant treatment until the child arrived at the age of 4 to 5 years, and if roentgenograms showed the stomach in the chest, probably operation would be urged.

June 10, 1929, I received a communication from Dr. Stimson reporting a recent observation of this patient. He found him to be a fine, strapping boy, apparently robust in every way. Fluoroscopy showed that the stomach was entirely in the abdomen. One or two physicians who took part in the examination believed, however, that there was some leakage back from the stomach suggesting a small esophageal herniation at the present time. Dr. Stimson states that the patient certainly has no rightsided hernia at present, although there may still be a small defect in the diaphragm on that side.

The significance of this report is apparent. The hernia occurred on the right side, an uncommon location. The intestine was not involved. Continuous vomiting was an annoying symptom. The only other complicating factor was a bronchitis. Both these symptoms were due, probably, to malposition of the stomach and pressure on the trachea. Since the patient could vomit, there was no evidence of obstruction. In a paper on the subject read before the Section on Gastro-Enterology and Proctology in 1921, I [7] made the following comment: "Spontaneous reduction is a phenomenon associated with congenital hernia when the stomach alone or accompanied by the bowel slides back and forth with respiration and posture." The tendency for such hernia openings to close, partially at least, is recognized. It is well also to reflect that closure may be apparent only. The condition now observed in Dr. Stimson's case, a small esophageal defect in the diaphragm, may be the setting for a recurrence of the hernia of the stomach in later life, or the starting point for a complete rupture of the diaphragm from external violence.

When directing treatment, it may prove advantageous to consider these factors. While operative measures alone can repair an abnormal opening in the diaphragm, the mere existence of an aperture does not warrant surgical intervention. The indication for operation is based on the degree of disturbance involved. It may be short-sighted not to operate on every child found to have a congenital hernia of the diaphragm, but if the whole story about this deformity were known, it might be found that nature probably continues the process of closure after birth, rendering many apertures harmless. Therefore, before advocating an operation for congenital diaphragmatic hernia in early infancy to close an opening that is latent—one which is merely potentially dangerous—it is advisable to compare the danger of delay with the risk of operation. Both have their unfavorable aspects. The surgical mortality in competent hands probably would vary from 5 to 10 per cent. It is unquestionably greater than in other forms of hernia. With this in mind, it is necessary only for one to speculate on the liability of acute intestinal obstruction, which involves a mortality of 100 per cent without operation and 75 per cent with operation. It seems to me that the type of hernia would be an important consideration affecting a decision. By type I refer not to the particular foramen involved but to the contents of the hernia. If the stomach soon after birth is found riding up and down through an aperture in the diaphragm, the tendency is for the hiatus to get smaller. Only a blow of unusual violence would greatly complicate the picture and render the situation danger-

5. Woolsey, J. H.: Diaphragmatic Hernia, J. A. M. A. **89**: 2245-2248 (Dec. 31) 1927.
6. Stimson, P. M.: Report of a Case of Diaphragmatic Hernia, New York State J. Med. **23**: 408 (Oct.) 1923.
7. Truesdale, P. E.: Diaphragmatic Hernia: Its Clinical Aspects from Trauma in Children, J. A. M. A. **77**: 993-997 (Sept. 24) 1921.

ous. If, after a period of from five to ten years, in an individual otherwise well, it is found that the stomach, which was herniated at birth, has assumed its normal position or has a portion of its cardiac end slipping in and out of a small defect, a waiting policy would appeal to most physicians. On the other hand, if investigation revealed the intestine above the diaphragm with or without the stomach, operation is indicated to avoid the hazards of acute intestinal obstruction.

OPERATIVE TREATMENT

When surgical intervention is indicated during infancy or early childhood, it is important to bear in mind that the chief risk during the operation usually ascribed to shock is, in reality, from asphyxia. The greater liability for the occurrence of this accident in the young is due to the wider range of mobility of the mediastinum. In animals, such as the dog, one finds a swinging diaphragm and sometimes no partition between the two sides of the thorax. Therefore, any operation on one side of the chest carries with it a high risk of death from asphyxia. Whereas the mediastinum in the child moves through a more restricted range than that of the dog, it has a greater freedom of motion than that of the adult. A pneumothorax of one side, when maintained by the atmospheric pressure alone, may cause a displacement of the mediastinum to the opposite side, with compression of the lung and a degree of asphyxia sufficient to cause death.

Among several of the cases reported, I have found that children have lapsed into a state of shock while on the operating table. This happened in the cases reported by Woolsey and Torek.[8] While the heart action can be stimulated by manipulation, it is clear that in these cases the patient is suffering from asphyxia due to lung compression. The only way in which I was able to keep dogs alive throughout the experimental procedure was by using Erlanger's respiratory interrupter. And I believe that intertrachial anesthesia with the use of Erlanger's respirator will add substantially to the safety of an operation on the diaphragm in children.

In this connection it is important before the final stitch is inserted in closing the chest wall, or in the diaphragm during a laparotomy, to have the lung plainly in sight and completely expanded during inspiration.

The value of preliminary cecostomy as essential in the two-stage operation for hernia of the diaphragm complicated by acute intestinal obstruction has been demonstrated. It has been the outstanding factor in the success of my efforts.

It is in dealing with these complications that I have found the mortality of reported cases exceedingly high. Inevitably this must be so, because an operation of repair undertaken on any individual during a period of intestinal obstruction is exceedingly hazardous. When the patient is an infant or a child, the risks from asphyxia, shock and toxemia are further increased. Carman[9] reports eight cases. Six were in adults, all of whom survived the operation. Two were in children, one 9 years old, the other 5. Both died from shock. Clark,[10] Davis[11] and Hess,[12] to mention a few investigators of the problem, cite results which indicate a much higher mortality in children than in adults. From the collected series of 378 patients reported by Hedblom,[13] I find the operative mortality to be 41 per cent in children, with only two cases of obstruction. As regards adults, one can judge from a greater number of cases, since of 378 patients only eleven were under 5 years. Of 252 without obstruction, fifty-nine died, or 23.4 per cent. Of 126 patients of all ages with obstruction, sixty-seven died, or 53.1 per cent.

Johnson,[14] in the report of a remarkable case, has made a genuine contribution to the surgical treatment of these cases. However, he created an artificial pneumothorax previous to operation. The patient's lung collapsed, yet he went on breathing very easily. He recommends the adoption of this method in thoracic surgery because, since the lung on the affected side is usually found partially or wholly collapsed, further displacement of the mediastinum and compression of the good lung by the introduction of air might not work out well in every case. As a rule, deflation of the affected side is more helpful than inflation.

Dr. Johnson's patient, a youth aged 18, was admitted to the Union Hospital of Terre Haute, after having been pinned beneath a box car. The face and neck were swollen and discolored; the pulse was weak, and the respirations were irregular and shallow. The body was cold. There was cardiac dulness on the right side of the chest, and tympany over the normal area of cardiac dulness.

Roentgen examination did not show fractured ribs, but a bulging diaphragm was seen about the third interspace on the left. The right arm and both legs were paralyzed. The fourth lumbar vertebra and transverse process were fractured. The bluish color of the skin suggested traumatic asphyxia.

November 14, fluoroscopic examination revealed the esophagus extending to the usual location of the cardiac orifice and emptying into a cavity located along the spine on the left. This pear shaped cavity retained 16 ounces of the barium meal. The entire stomach and part of the bowel were in the thoracic cavity.

Thoracotomy, Jan. 18, 1926, showed the stomach, colon, spleen and small intestine in the thoracic cavity. Only a narrow anterior shelf of diaphragm could be discovered. Probably there was a congenital anomaly of the diaphragm. After the viscera were pushed into the abdomen, the posterior portion of the diaphragm was discovered folded flat against the posterior body wall. An artificial pneumothorax was created by spreading the ribs more. This kept the viscera in the abdomen and did not embarrass respiration.

After the operation the patient had a severe grade of shock for thirty-six hours. The x-rays revealed a hydropneumothorax. On aspiration a large amount of dark blood-stained fluid was obtained. Aside from this, recovery was uneventful.

I have treated the following patients suffering from acute intestinal obstruction by adopting a two-stage operation, first removing the obstruction by a cecostomy, and then repairing the opening of the diaphragm:

CASE 3.—L. S., a boy, aged 5, admitted to the hospital, Feb. 23, 1921, had been struck by an automobile in May, 1920. At that time he was taken to a hospital, where he remained for ten days. For nine months his parents had him examined by many physicians to find a cause for his queer spells of dyspnea, choking and nausea. February 1, he had a severe attack of dyspnea, perspiration and nausea but could not vomit.

Roentgen examination of the chest and abdomen showed a portion of the stomach and both large and small intestines in the left chest cavity. A roentgenogram after a barium meal revealed the stomach and colon in the left pleural cavity.

Thoracotomy was performed, with recovery.

8. Torek, Franz, in discussion on Harrington, S. W.: Diaphragmatic Hernia, Arch. Surg. **14**: 411-415 (Jan., part 2) 1928.
9. Carman, R. D., and Fineman, S.: Roentgenologic Diagnosis of Diaphragmatic Hernia with Report of Seventeen Cases, Radiology **3**: 26-45 (July) 1924.
10. Clark, D. F.: Illinois M. J. **52**: 63 (July) 1927.
11. Davis, J. D. S.: Diaphragmatic Hernia: Report of Five Cases, South. M. J. **8**: 707-709, 1915; J. South. Surg. & Gynec. A. **27**: 334-347, 1914; Internat. J. Surg. **28**: 120-122, 1915.
12. Hess, J. H.: Cook County Hospital Clinic **8**: 37.
13. Hedblom, C. A.: Diaphragmatic Hernia, J. A. M. A. **85**: 947-953 (Sept. 26) 1925.
14. Johnson, G. T.: Diaphragmatic Hernia, with Report of Case, J. Indiana M. A. **20**: 135 (April) 1927.

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The child did well for eight months following this operation. Then he began to have periodic attacks of hiccup with sighing respiration. A drink of water brought relief. November 27, he complained of epigastric distress and vomited three times.

December 1, cecostomy was done for acute intestinal obstruction after a barium enema demonstrated the point of blocking in the transverse colon.

Seven weeks later, on Jan. 19, 1922, the boy, now 6 years old, was again admitted. There had been a free discharge through the cecostomy for the first three weeks, until the cecostomy closed. During the past ten days he had had abdominal cramps and vomiting, with simultaneous opening of the cecostomy. Finally the symptoms indicated obstruction of a loop of colon, which had passed through the diaphragm.

Thoracotomy yielded free fluid, and a knuckle of the large intestine was found adherent in the line of repair, part of which had yielded. The bowel was reduced and the opening sutured.

Nov. 20, 1922, eight months later, the boy returned to the hospital. He had been well until he went coasting and took a "belly bumper" on his sled. Persistent vomiting followed. There was found definite evidence of peristalsis in the left side of the chest posteriorly as high as the angle of the scapula. A roentgenogram confirmed the diagnosis of obstruction. The cecostomy was reopened.

December 5, the recurrent diaphragmatic hernia was again repaired by thoracotomy. At operation, a large part of the colon was found in the left pleural cavity.

Sixteen months later, on April 10, 1924, the patient, now 8 years old, returned because of recurrence of vomiting, pain and stoppage. The cecostomy was reopened, and operation deferred.

April 23, thoracotomy was performed for recurrent diaphragmatic hernia. There was found an opening in the diaphragm apparently just on the margin of the previous line of repair. The margin of this tear was rather firmly adherent to and constricted about the bowel, which had penetrated into the chest cavity. About a foot of the large intestine was in the thoracic cage. This was reduced, and the opening sutured.

The patient is now well, attends high school, and manifests no disturbance, either thoracic or abdominal.

In view of the several recurrences of hernia in this case, some question arose as to the method of suturing the aperture. In the first operation, the repair was made by a double-thread running suture of iodized catgut, reinforced by three mattress sutures of the same material. In the second operation, eight interrupted sutures of silk were used; in the third, interrupted sutures of chromic catgut reinforced by a running suture of silk; in the fourth, closely placed interrupted sutures of chromic catgut reinforced by four sutures of linen. Close scrutiny of the margins of the tear in each instance revealed a marked difference in the thickness of the musculature of the proximal and distal sides of the opening. That part of the diaphragm which was near the median line and which had retained its nerve supply had more muscle body, whereas that on the outer side was much thinner in texture and had the appearance of being torn off the thicker side of the line of union. Tested by make-and-break shocks of a faradic current, the inner side responded quickly, but the outer side gave little or no response to stimuli. Therefore it is likely that the method of suture had nothing to do with the recurrence of hernia in this case.

CASE 4.—A. B., a girl, aged 6, admitted to the hospital in March, 1925, had not shown any abnormality at birth or during infancy, but one year before she had had an accident while coasting, after which she came home with severe abdominal pain and vomited. Two days later she was operated on in Brockton, Mass., for acute intestinal obstruction. A hernia of the diaphragm was found involving the transverse colon. This was withdrawn into the abdominal cavity. The opening in the diaphragm was too inaccessible for closure.

At the close of the convalescence the patient returned home and remained well for eleven months, when there was a recurrence of the intestinal obstruction. In February she was again admitted to the hospital for acute intestinal obstruction. At operation the same conditions as found a year before were exposed. Dr. Goddard again relieved the obstruction but was unable to close the opening through an abdominal incision.

A roentgenogram revealed a loop of large intestine above the diaphragm.

An appendicostomy was done as a preliminary step, March 20, 1926.

April 2, 1926, I opened the abdomen by an incision parallel to the left costal margin. The diaphragm was exposed, and an attempt made to reduce the incarcerated loop of the transverse colon. This could not be done on account of adhesions to the aperture and apparently above it. The operation was then abandoned.

April 26, 1926, the left side of the thorax was opened by a trap-door incision. A small amount of free fluid was present, and the left lung was partially collapsed. A loop of the colon, 6 by 8 inches in length, protruded into the pleural cavity, adherent to the pericardium and to the base of the left lung. In order to cope successfully with conditions found above and below the diaphragm, it was necessary to make a thoracoperitoneal approach in order to release all the adhesions and to suture the opening.

Through a thoracoperitoneal incision the bowel was reduced and the opening sutured. The patient recovered and at present is well and attending school.

CASE 5.—A. C., a girl, aged 5, admitted to the hospital, May 13, 1928, had been struck down by an automobile, March 29, 1928, receiving injuries to the body and right leg. Roentgenograms of the abdomen after a barium enema showed a hernia of the left diaphragm, the splenic flexure of the colon extending well into the chest cavity.

Thoracotomy was done, May 18, 1928, disclosing the spleen, a mass of omentum, coils of small intestine, and the transverse colon in the pleural cavity. In the apex was the stomach, upside down. The lung was almost entirely collapsed; the entire mediastinal contents were displaced to the right. The opening in the diaphragm was so large that there seemed to be almost no barrier between the pleural and abdominal cavities. It was clear that the diaphragm had been torn from the esophageal opening outward to the costophrenic angle, close to its anterior margin. Apparently at the esophageal end there was a congenital hernia of the diaphragm. From external violence the stomach entered the sac so suddenly and forcibly that it split the diaphragm from the esophagus to its perimeter. The anomaly, harelip, in this case suggested close scrutiny of the tear in the diaphragm.

The patient was seen at her home, April 25. She played with other children and was considered well.

Another case was seen with Dr. Joseph O'Connell of Providence, in his surgical service at the Rhode Island Hospital. Following is a brief report:

CASE 6.—A boy, aged 4, was struck by an automobile and sustained a stellate tear in the left leaf of the diaphragm. Operation was by the abdominal route. The boy recovered.

SUMMARY

1. A normal diaphragm is essential for perfect physical endurance.

2. The vast majority of defects discovered during life are of congenital origin.

3. Congenital hernia involving the stomach alone and revealed in infancy or early childhood demands surgical treatment only when disturbing symptoms persist.

4. Hernia of the diaphragm, congenital or acquired and involving the transverse colon, should be dealt with by the two-stage operation without regard to the age of the patient.

5. While children withstand operation surprisingly well, risk of shock will be reduced by the use of a mechanical respirator with intertracheal anesthesia.

6. My series of six operations on children with intestinal obstruction is too small to serve as a criterion of the surgical mortality. All survived with the two-stage operation, which in each instance converted what would have been a complicated major endeavor into two relatively safe and simple procedures.

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ABSTRACT OF DISCUSSION

DR. CARL A. HEDBLOM, Chicago: Dr. Truesdale's investigations of the physiology of the diaphragm are of particular interest at this time because of the recent introduction of paralysis of the diaphragm by extraction of the phrenic nerve, particularly in the treatment of pulmonary tuberculosis and bronchiectasis. Changes result in the function of the diaphragm, but clinical observation after the operation in thousands of cases has demonstrated that they are of no serious import. On the contrary, the partial rest and compression and the more complete evacuation of pus from the dilated bronchi made possible by it in bronchiectasis make paralysis of the hemidiaphragm an indispensable adjunct to other methods in the treatment of these conditions. In the care of some patients this operation alone effects a cure. My experience and study of the literature have led me to classify diaphragmatic hernia into three types, namely, the congenital, the acquired and the traumatic. I would consider as congenital those cases in which there is a defect in the diaphragm at birth sufficient to admit abdominal contents into the thorax; as acquired, those which develop later through an anatomically weak area, such as the esophageal ring or foramen of Morgagni, and, as traumatic, those resulting in any part of the diaphragm from direct or indirect trauma. The symptoms of diaphragmatic hernia, in my opinion, depend chiefly on the size of the hernial ring and on its contents. A ring just large enough to admit a loop of small intestine is most apt to produce acute obstruction, while a very large ring may allow herniation of most of the intestine and other organs without the production of any marked symptoms. Herniation of the stomach or of the large or small bowels alone will characteristically produce symptoms referable to the organ involved. The development of dyspnea or palpitation or both will depend on a hernia of sufficient size to crowd the lungs and heart and on the relative stability of the mediastinum. The differential diagnosis may be very difficult, but as the author has said it can usually be made if the possibility of diaphragmatic hernia is kept in mind. The most reliable diagnostic method is, of course, the roentgen ray after a bismuth meal or enema, but it must be realized that negative roentgen observations do not necessarily exclude the condition. The hernia may be spontaneously reduced at the time of the examination. Treatment depends in part on the position of the hernia and in part on the symptoms produced. Hernia at the esophageal ring should be repaired if it produces marked symptoms. Traumatic hernia should be repaired provided there is no contraindication to operation. A small traumatic hernia opening in the leaf of the diaphragm is the type that most often leads to acute obstruction.

DR. PHILEMON E. TRUESDALE, Fall River, Mass.: It is perfectly obvious that Dr. Hedblom has a comprehensive knowledge of this subject. I knew he would give us some practical information about phrenicotomy. My exhibit is not given with any intention of being dogmatic on the application of phrenicotomy; it is just brought out to show what happens when phrenicotomy is done. A flat chain was passed down the dog's esophagus. One could readily observe through the fluoroscope what happens in the lower end of the esophagus when one side of the diaphragm is paralyzed and the innervated side functioning normally. There is a distinct lateral pull and also a twisting motion of the lower end of the esophagus. It is comparable to the distortion of the muscles around the mouth in facial paralysis. As Dr. Hedblom said, one needs to weigh all the evidence in favor of and against phrenicotomy. It is necessary to keep in mind that, once the nerve is cut, it cannot be easily repaired. Of course, if the nerve is cut over the scalenus anticus muscle, it may still function, because there is a small communicating branch between the brachial plexus and the phrenic nerve 2 or 3 inches lower. One may not paralyze that side of the diaphragm; but, if the nerve is avulsed, it is paramount to cutting it near the diaphragm.

The Physician.—The general practitioner does not need to be a specialist or research worker. It is not practicable or possible to make specialists and research workers out of all physicians.—Kinsolving, W. S., *Kentucky M. J.*, October, 1929.

EXOTOXINS OF HEMOLYTIC STREPTOCOCCI

THEIR COMPLEXITY AND RELATIONSHIPS *

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NEW YORK

Investigators who studied minutely the exotoxins of hemolytic streptococci as demonstrated by the skin test in human beings early obtained evidence of the complex nature of these toxins.

Not only did the strains from different clinical conditions produce toxins that gave different results in certain cases among a series of human beings and the same result in others of the series, but those from the same clinical condition gave toxins that showed the same phenomenon of complexity.

The toxin-producing power [1] of strains of hemolytic streptococci from many different clinical conditions have been examined, but particular concentration has been put on strains from scarlet fever, erysipelas, puerperal fever and meningitis.

It was early found, as was reported some time ago, that the agglutinin absorption and the protection tests ran much more closely parallel than the toxin skin test. In other words, among the strains tested there are more or less definite agglutinative groups which correspond with protection groups and these in a measure with the clinical picture, while each strain tested from whatever clinical condition produces a toxin that gives a varying reaction in many children, and this toxin can be neutralized by any monovalent antitoxic serum in certain of these children and not in others. This means that the exotoxin-producing power of these strains is broader than is that of the two other antigenic powers.

The first to publish a striking example of the phenomenon of complexity were Kirkbride and Wheeler [2] in 1924. They simply described the phenomenon. Then Park and Spiegel [3] published similar examples which were observed in our work at the New York City Health Department Laboratories, and gave an explanation of the reason for it, together with further illustrations. They say:

> The fact that an individual convalescent scarlet fever serum neutralizes the toxin of a certain scarlet fever streptococcus in certain susceptible persons and not in others proves that the toxic filtrate has more than one toxin and that a person may be susceptible to one component and not to another or others. We can conceive that the usual scarlet fever strain makes a toxic filtrate containing the different toxins A, B, C, D. A less common strain A, C, D, E or B, C, D, E. Strains from some septic sore throats C, D, H, I and from some erysipelas cases C, D, K, L and so on. Antitoxins to a greater or less degree would develop in any person or animal injected with any toxic filtrate to neutralize the actual toxins present in the filtrate.

The practical question is, How widespread is this variability? We in our laboratory and Kirkbride and Wheeler in the state laboratory have made an extensive study of the toxin production and serum neutralizing power of strains from many sources.

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* From the Bureau of Laboratories, Department of Health.
* Read before the Section on Pathology and Physiology at the Eighteth Annual Session of the American Medical Association, Portland, Ore., July 12, 1929.

1. A. Brassel and B. Kolchin have assisted in the preparations of the toxins. The skin tests have been done chiefly by M. Schroder, J. B. Ruhl and P. Seiler.
2. Kirkbride and Wheeler: Proc. Soc. Exper. Biol. & Med. **22**: 85, 1924.
3. Park, W. H., and Spiegel, R. G.: J. Immunology **10**: 829 (Sept.) 1925.

Wadsworth and his co-workers published a report in March, 1929, dealing with the efficiency of serum therapy in the treatment of scarlet fever and the potency and polyvalence of the serum that is used. The importance is emphasized of careful selection of the standard strain or strains to be used in the production of the serum as to the potency of its toxin and especially its antigenic action as indicated by the polyvalence of the antitoxin produced with it. These conditions according to them have thus far apparently best been met by the streptococcus strain Dochez N. Y. 5, used in their laboratory as standard. They compared this strain only with the Dick II strain. They maintain that such a strain as this Dochez 5 should be used as an official standard instead of the Dick II strain that Washington now uses.

In our toxin production for our horse injections and in our vaccine for the scarlet fever work, we have been using for some time a strain of hemolytic streptococci which we have designated 2^2. It came from an early severe case of scarlet fever. It was virulent from the beginning and it has always produced a strong toxin. It is, furthermore, a master strain since it includes agglutinins like the strains in our largest scarlet fever group and has some of its own besides.

We have made many comparative tests of our 2^2 strain toxins with Dochez N. Y. 5 and Dick II toxins and it is interesting how irregular are the results with different dilutions. Thus, we tested some fresh preparations recently in a series of fifty children in the dilutions we thought approached the Washington standard toxin of 35,000 skin test doses to the cubic centimeter. We tested each (Dochez N. Y. 5 and our 2^2) on a basis of 20,000 skin test doses to the cubic centimeter. Their strength had been determined tentatively by the flocculation test. According to this first test Dochez toxin gave five more positives than the Washington toxin, and our 2^2 toxin gave seven more. Furthermore, the reactions of these two were more intense. As the standard seemed to have picked up a slightly smaller percentage of positives than it had with previous tests we concluded that it had fallen off a little and that our own 2^2 and the N. Y. 5 were a little stronger than they had seemed earlier, so we tested the same series of children as follows: the standard on a basis of 30,000 skin test doses, Dochez N. Y. 5, 30,000 skin test doses and ours, 35,000 skin test doses to the cubic centimeter. Now the reactions were almost equal in each child. Our preparations of toxins were made with trypsin broth, according to the method of Cole and Onslow.[4]

The keeping qualities of these toxins are excellent, and we still consider that around the tenth day is about the best for withdrawing them from the incubator. Our dilutions seem to be keeping their strength in the buffered solution recommended by Glenny, Pope and Waddington, which we use in diluting the diphtheria toxin in our Schick test work. This dilution is a 1.5 per cent solution in distilled water of a mixture of 57 Gm. of crystal borax ($Na_2B_4O_7$, 10 H_2O); 84 Gm. of boric acid (H_3BO_3), and 99 Gm. of sodium chloride (NaCl). This solution has a p_H from 8.0 to 8.4; it is stable on autoclaving and has proved to be a satisfactory diluent in routine work for the past year.

The toxins made from our strains obtained from meningitis, from puerperal fever and from erysipelas have on the whole not been as strong as those from our scarlet fever strains. They have ranged from 10,000 skin test doses to the cubic centimeter to 2,000 skin test doses. Here again in a series of children we get the same approach to the same intensity of reaction when we regulate the dosage that we obtained with our toxins made by scarlet fever strains from different cases.

In regard to the neutralization of these toxins with antitoxic serum we have made the majority of our tests with the serum stimulated by our own strain 2^2 and the standard Dick II strain. With each toxin tested we have obtained the infrequent lack of neutralization in an individual child which we have spoken of. The majority of children have shown neutralization. We find about one case in fifty in which our 2^2 toxin and Dochez 5 toxin does not show neutralization by the standard serum.

With cross-neutralizations on an extensive scale we would no doubt find an occasional individual uninfluenced by an antitoxin that had been stimulated by the exotoxins of any one of many strains. We may say, then, that in the majority of cases of any disease caused by hemolytic streptococci, any part of the lesion due to the exotoxins may be helped by any antitoxin, stimulated by the exotoxins of any strain obtained from any of the disease conditions, while in those cases in which the chief pathogenic effect is due to the so-called endotoxins, as seems to be the case in erysipelas, puerperal fever and streptococcus meningitis, only those serums may actively help which are stimulated by a strain of the same agglutinative type as that of the invasive strain. In these cases it is worth while attempting an agglutination test and even an absorption test to try to determine the best type of serum to continue using.

A word about the horses. It is well known since the time of Schick's announcement in 1907 that horses are irregular in regard to their antibody response. Many have had to be discarded. As Park has pointed out, the antitoxic response is probably different for the different components of the toxins either because of the different proportions of the toxins in the filtrate or because the animal responds differently in degree to the stimulus of the different toxins.

These investigations have led to the following conclusion: In the making of antitoxic serums to be used in treating hemolytic streptococcus exotoxin infections, theoretically it would be well to use a strain of streptococcus having maximum exotoxin producing qualities; but practically any strain of hemolytic streptococcus showing an ability to produce an exotoxin will, given a responsive horse, stimulate the production of an antitoxin serum that will be effective in all but the exceptional case.

It is well, however, for the practicing physician to bear in mind that these exceptional cases do occur, and that they may explain the occasional lack of response to the antitoxic serum.

Foot East Sixteenth Street.

4. Cole, S. W., and Onslow, H.: Lancet **2**: 1011 (Dec. 16) 1916.

ABSTRACT OF DISCUSSION

DR. MILDRED MCBRIDE, Portland, Ore.: My experience has been with scarlet fever as we encountered it in the hospitals in New York. It was my privilege at that time to use the serum prepared by Dr. Park and Dr. Williams. We treated many thousands of cases. We found a uniformity of reaction in giving the antitoxin. It was uniformly good. There was an ordinary, resulting fall in temperature and cessation of symptoms when this serum was given. We did, however, have one outstanding case that did not show this improvement of symptoms, which is the only one I remember of all these cases. It further shows that while the antitoxin does not

cover all of these exotoxins, probably the one exceptional case or the few cases that one may encounter are of little significance in comparison with the large numbers that are successfully treated.

DR. CLARENCE A. EARLE, Des Plaines, Ill.: Would we be justified in immunizing children against scarlet fever with whatever toxin we can get, with the idea that it will help in protecting against scarlet fever? It seems that there are such generic relations among all these hemolytic streptococci that immunization against scarlet fever would certainly confer some immunity against erysipelas, puerperal fever and these other hemolytic streptococcus diseases. Some months ago I read an observation by a German physician, in which he said that the incidence of puerperal fever was four times as great in Dick-positive women as it was in those that were Dick-negative.

DR. ANNA W. WILLIAMS, New York: I mentioned in the paper that immunization with the exotoxins does give protection against scarlet fever. Unfortunately, in puerperal fever and erysipelas and septicemia, the other antigens are acting, and the antitoxin does not have much effect; theoretically, it has no effect, but it may help in increasing the general immunity. In such cases, if one wanted protection, one would have to use, of course, a serum containing the antibacterial substances as well as the antitoxins, but antiserums, as we all know, do not give lasting protection. In the treatment of these cases we should use a serum that we know is stimulated by a strain similar to the invading strain.

HEALTH CENTER DEVELOPMENT IN LOS ANGELES COUNTY *

J. L. POMEROY, M.D.
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LOS ANGELES

In presenting the development of the health center plan in Los Angeles County, California, it is clearly understood that conditions differ materially in various sections of this country, but the basic principles of public health organization are the same. While in this paper I shall deal with local conditions as they relate to my experience, the principles involved are of considerable importance throughout the United States. The need for a more definite integration of the many types of health promoting agencies and the mobilization of our financial resources in order to speed up the production of service to the people is of critical importance throughout the country. Especially is this true in relation to adequate public health and medical service in the smaller cities and rural districts in many sections. While science has produced the knowledge and technic to prolong human life, the administrative machinery to make this technic applicable to a considerable percentage of the population is largely lacking.

The special significance of the developments in Los Angeles County rests on the fact that our organization has been accomplished through the official county government without outside subsidy or assistance. When it is considered that nearly 50 per cent of the people of the United States reside in small cities and rural areas and that these areas are the sources of the accessories of urban life, the necessity for encouragement of county organization becomes paramount. At the present rate at which counties are organizing in the United States, it will require, according to Dr. L. L. Lumsden of the United States Public Health Service, about fifty-one years before a reasonably adequate whole-time local rural health service can be extended to these communities. The mutual interdependence of urban and rural districts is of national importance and it is hoped that our experience during the past fourteen years in Los Angeles County may stimulate the development of other county health work.

I took office as health officer in Los Angeles County in April, 1915. A survey made of the situation at that time showed briefly the following facts: The public health and allied medical and social resources were largely unrelated and disconnected and no plan of coordination existed. The county health officer had authority only over the unincorporated area in the county. The county office itself was a one-man office with an annual appropriation of about $7,000. The area of the county was 4,000 square miles with about fifty towns and villages varying in population from 500 to 25,000. There were no local branches or centers, no local public clinics, and no free hospital beds outside the county hospital, and the only ordinances had to do with quarantine and rudimentary sanitation. Outside of the three large incorporated cities in the county which were well provided with public health service, there were thirty-three small cities with an average per capita appropriation annually for the health department itself of about $0.07. None of the smaller cities had a full-time health officer and in five of the towns there was no regularly constituted board of health. For the total urban population of approxiately 73,000 persons there was available an annual appropriation of less than $6,000. There was in addition no statutory relationship between the county government and the incorporated cities for health purposes.

The situation in regard to the school districts was even more undeveloped. There were 167 independent school boards each with authority to employ public health nurses and others, but in the small cities and rural districts no use had been made of this law.

Services to the sick or services for the correction of developmental or health defects were entirely centralized in the county hospital located in the city of Los Angeles, and such services were limited to the absolutely indigent class; but there existed no local social service or other means of determining eligibility. Such service was centralized at the headquarters of the Outdoor Relief Department in Los Angeles. Other accessory services, such as local clinics, home visitation of the sick and local emergency hospital service, were utterly lacking.

PLANS FOR DEVELOPMENT

A study that I made during the years 1915 and 1916 brought out the following basic principles and plans for development:

Financial.—The county government under the state law was required to pay the costs of caring for the indigent sick and the dependent poor representing in a large measure the end-results of the lack of prevention. The county functioned in this respect for both incorporated and unincorporated territory. Therefore, since the county as a unit was required to tax itself for the end-results of social and medical maladjustment, it was logical that the county should take the initiative in cutting down this burden as far as possible. To this end an enabling act was secured from the state legislature which provided a means for legal agreements between the county board of supervisors and the city governments whereby the county appropriated equal sums of money with the cities and took over the health administration of these incorporated cities. Since 1915, thirty-

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four of the incorporated cities have thus been organized and the per capita expenditure of the combined city and county health departments is now $0.92. This program has solved the financial situation.

Child Hygiene.—Since the basis of much of our preventive medicine has to do with the child, it was necessary to coordinate the disconnected school district plan. As legal provision already existed for the school boards to employ health workers, we easily reached an agreement with the school boards to employ jointly nurses, physicians and dentists. As a result nearly all of the school districts under our jurisdiction have merged their work with our child hygiene and nursing division, and thus some 65,000 school children are receiving a modern health and development program.

Organization for the Care of the Sick and Accessory Medical Services.—It was obviously impossible to render adequate service through a single general hospital located in the city of Los Angeles. It was clear that part of the service had to be taken closer to the people. At this point the integration of our community services through the health center was presented to the county board of supervisors. During the early years of this development, the health centers were specialized in their services and primarily were child welfare stations. Nevertheless as early as 1919 we began constructing our own buildings to lay the foundation for a concrete local neighborhood center devoted primarily to the public health. It has been a fundamental principle in our work to visualize and make concrete to the public what the health service meant. Our conception was a health service station which would gradually increase in its facilities until all necessary units were in operation. It is my opinion that the multiplicity of activities under many different types of organization, each with its own independent service, occupying a part of the public health field appealing to the public for its funds has without doubt often delayed the bringing into being of a well balance official health service with a local habitation and a concrete easily defined program.

During the years from 1919 to 1926 many child welfare stations were opened throughout the county, in each instance with the integration of all local health services. During these years we were able to demonstrate to our governing body the following principles:

1. The need for adopting a definite plan of decentralized service not only for the health department but also for the related social and medical services.

2. The necessity for conserving hospital beds by providing local clinics to screen out by careful examination patients who could be treated as ambulatory.

3. The economic factor, namely, that service could be rendered in outpatient clinics at a cost of less than one-fourth that of institutional care. Also patients could be given after-care at such stations, permitting of fewer patient days in the county institutions, affording more free beds for acutely ill patients and enabling completion of the cure.

4. The unprecedented increase in automobile accidents, amounting to a rate varying from 35 per hundred thousand population to at present 42 per hundred thousand, accentuating the need for local emergency hospital service.

5. The obvious necessity of correcting remedial defects found in school children and of truly preventive work in finding early cases of tuberculosis, together with the widening scope of public health activities in relation to the prevention of heart disease, cancer, mental hygiene and the degenerative diseases.

6. The serious injustice of expecting the local private practitioner to care for the indigent and socially underprivileged persons gratuitously and often without the technical assistance now so seriously needed in diagnosis and treatment.

7. The need for complete epidemiologic services with adequate local laboratory, field, sanitary and food inspection covering areas through which as a consequence of local conditions the spread of disease might ensue.

This program was materially aided in its adoption by the report of a board of experts employed by the county board of supervisors in 1924 headed by the late Dr. Richard G. Broderick of San Francisco. The recommendations of this board of experts endorsed the plan of the county health department for a type of health center which mobilized all of the related units, as will be subsequently described. The general plan therefore comprised:

1. The enlargement of the present general hospital from 1,400 beds to 3,300 beds.

2. The enlargement of the tuberculosis sanatorium from 250 beds to 700 beds.

3. Increasing the facilities at the county farm by the building of an infirmary to take care of those dependent persons in need of medical aid, but with chronic or subacute disabling diseases.

4. The building in local districts of health centers to furnish the following services:

(*a*) The local offices of the health department with a complete laboratory service and all other accessory units.

(*b*) A small emergency hospital of from four to six beds.

(*c*) The decentralization of the county welfare department and the attachment to each health center of a staff of social workers to care for the problem of eligibility, food, clothing and general rehabilitation of all dependents in the district.

(*d*) The adequate provision of all types of clinics for all types of the ambulant sick with accessory services such as roentgen ray, physical therapy and adequate nursing.

(*e*) The creation in the health department, and so far as I know for the first time in any health department in the United States, of a medical social service bureau to act as a correlating agency on all social, medical and public health problems not only in the health center but also in the home; to assist not only in local indigent cases but in solving the problem of the borderline patient who was not quite able to meet economically his medical social problem.

As a result of these studies, reports and investigations since 1924, the county health department has through its annual budgets had appropriated nearly $600,000 for major health center buildings and their equipment. To date five buildings have been completed and one is in process of construction. Two buildings not included in this total have been secured by gift and three additional buildings are contemplated in the near future.

GENERAL ORGANIZATION OF THE DEPARTMENT

The organization of the county health department consists of the central office and the district administration.

Central Office.—The health officer of Los Angeles County operates directly under the board of supervisors and is a charter officer. Civil service rules prevail. In

order to meet the many medical and medical social problems encountered, there is a medical advisory board appointed by the county board of supervisors, which medical board regulates the affairs of all the local medical clinic and hospital staffs of the health centers. All applicants to the staff must be passed on by the advisory board. In case of any dispute, this board acts as a board of arbitration. At present the board consists of Dr. George Kress, past president of the state medical society, editor of *California and Western Medicine* and prominent committee leader in medical and other affairs; Dr. Percy Magan, president of the faculty of the School of Medical Evangelists of Loma Linda and of the White Memorial Hospital Board of Los Angeles; Dr. Charles Bennett, internist, in active practice in Los Angeles; Dr. Ernest Gallant, orthopedic surgeon, member of the outpatient staff of the general hospital, the committee on clinics and dispensaries of the county medical society, together with the county health officer, ex officio.

The central office is in the Hall of Justice at the county seat in the city of Los Angeles and the general organization is that of staff and line officers as in the army. There are seven bureaus, each with a bureau director, as follows:

Bureau of General Administration.
Bureau of Medical and Social Service.
Bureau of Maternal and Child Hygiene.
Bureau of Inspections.
Bureau of Public Health Nursing.
Bureau of Communicable Disease Control.
Bureau of Laboratories.

The laboratory maintains at the central office a service for both chemical and biologic research, serving not only the health department but also thirteen of the county departments as well in both bacteriology and chemistry. This brings into the bureau much related public health material, such as investigations of sudden deaths by the coroner's office, analyses of food supplies of all county institutions, research and investigations in sewage disposal, and many other related problems.

Close affiliations have been built up with the dental school of the University of Southern California, the medical schools of the College of Medical Evangelists and of the University of Southern California, and the public health nursing and other courses in the University of California at Los Angeles culminating in the creation of a teaching center at our largest health center located in Belvedere Gardens. Medical and other students are actually in course of training in public health while in college and are paid salaries while under our supervision. The heads of each bureau are required to accept teaching positions and to organize their work for teaching purposes in the colleges mentioned.

Besides the ordinary administrative work, the Holerith tabulating machine system has been installed and we are accumulating valuable cost data which are available to guide us in our work.

District Organization.—The county is divided into eleven administrative districts. Each district consists of one or more incorporated cities together with a section of the unincorporated area varying from 300 to 400 square miles in size and from 50,000 to 100,000 in population. A deputy health officer of the department is the executive of each health center and in charge of all employes of the district. Besides the major health centers, there are small branch centers located at strategic points and operated by the district staffs for special work according to the needs of the smaller towns and cities in the locality. The employees of the district represent the functions of their different bureaus. Nearly all employees of the health department are on a full-time basis.

Correlation of all social and public health work in the district is secured by the formation of a local health center association made up of representatives of all community workers in the district. The affairs of each local health center association are managed by the adoption of a uniform constitution and by-laws.

Perhaps of greater interest is the method of the organization of the medical staff for curative services. As soon as the building is equipped and ready for use, all practicing physicians in the health district are called together and an invitation to form a medical and surgical staff for the center is presented. A model constitution and by-laws as drawn up by the medical advisory board is presented by a member of this board. Within the legal and other regulations of the county government the medical staff functions as a governing body through the election of a chief of staff and a medical executive board. Rules for eligibility for membership on the staff are drawn up and no physician may join the staff who is not eligible to membership in the county medical society and who does not receive a favorable vote of the membership committee. The medical staff divides itself according to the training of each man and his desires into special clinic groups. These services include emergency work, both medical and surgical, pediatrics, eye, ear, nose and throat, orthopedics, psychiatry, surgery and gynecology and other clinics as the district needs indicate their necessity. Accessory services furnished by paid employees of the health department include dentistry, venereal disease, tuberculosis, child hygiene and special clinics such as cardiac, nutrition, health education, roentgen-ray, physical therapy and laboratory, as well as the usual communicable disease control as needed.

ELIGIBILITY

Service to the public regardless of financial status is rendered on all statutory public health work and educational service of the usual character. The medical social service division of the health department is the key-note to the success of the solution of the delicate problem of determining eligibility to curative clinics. We realize the danger of abuse of such a system by patients who can or should pay their way, and great care is used to prevent this happening. Emergency service is rendered to all persons regardless of financial status, the physician being permitted to bill the patient if subsequently it is found that the patient can afford to pay. Entrance to all clinics staffed by the local practicing physicians is secured only after careful financial investigation. The medical staff, together with our medical social service worker, determines for each district what standards of eligibility shall be applied. It is impossible in many cases to make an absolute hard and fast rule merely on the basis of salaries, since many patients have debts and obligations which complicate the situation. In our work we employ only the highest trained medical social worker we can secure. These workers must have had university training, plus at least six months' practical experience. We have found that our success has been dependent on the training of the medical social service worker and her personality. Of equal importance to the determining of eligibility is the interpretation to the patient of the medical and social factors in his case, the prevention of duplication of

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work by clearing through our community exchange, the adequate follow-up of the case in the home, and the mobilization of all the existing community resources to complete the rehabilitation of the patient. As a matter of record the number of actual paupers receiving treatment in our health centers comprises less than one fourth of the total cases treated, because the definition of an indigent person by law is so rigid that many needy and worthy persons would be left uncared for. This group, highly important to the success of our public health program, pay such fees as their means afford. The money from the work of the medical and surgical staff in these cases remains the property of the medical staff and is disbursed as the staff sees fit—in some cases in proportion to the number of hours of service spent by each man and in other cases placed in a fund for a district professional library.

SUMMARY

In every situation two processes seem to be involved: the making of a medical and social diagnosis, and the development of a plan of treatment, social or medical, or both.

In the great field of public health it appears that the various agencies involved in both processes are not only unrelated in physical continuity of operation but also frequently competing for public support. None of the many agencies involved are able to mobilize all of the factors necessary to bring about an efficient result with economy. Since after all the taxpayer must pay the costs not only of service rendered but of end-results, it seems to me that the great principle involved is to apply modern business principles to the chaotic conditions in public health and related medical services throughout the United States. It is not so important that we disagree on details, but it is highly necessary that we agree to pool our resources and work together. Too long public health, the medical profession and the social services of the community have been disconnected, working with the same high ideal of services but using entirely separate plans of approach, and rarely even speaking the same language. Old conceptions of service are crumbling. The field of public health is broadening by virtue of necessity. Environmental sanitation has in a large measure been accomplished. The line between curative medicine and public health is an imaginary one. Deaths by accident, by cardiac disease, by cancer and by other related conditions now challenge our ability not only in a technical but also in an administrative and organization sense.

I believe that our Los Angeles County district and health center plan fulfils the fundamental requisites for proper community organization. The health officer and the medical profession work together, thus assuring medical leadership and safeguarding the interests of both public health and private personal health. Through medical social service work, thorough eligibility investigation is assured and yet flexibility is provided for the borderline cases. Adequate financial support is assured by joint support from the county, from the municipalities, from the school district and from local unofficial agencies. Duplication of effort and overlapping is prevented by centralized authority and regional planning. Thorough scientific medical and social service is made possible by coordination of all technical accessory services, which are amply equipped. I submit the plan for consideration by the profession of uniting local public health service with district hospital and outpatient clinic service, supported by adequate accessory social and community welfare work under the direction of trained full-time persons, with a local medical volunteer staff in charge of all curative services, to the end that the applications of modern preventive medicine to a large proportion of our national population may be speeded up.

156 Hall of Justice.

ABSTRACT OF DISCUSSION

DR. CHARLES L. BENNETT, Los Angeles: I want to congratulate Dr. Pomeroy, who started with an appropriation of less than $6,000 and a staff consisting of himself and a sanitary officer, and developed an organization in fourteen years serving a population of more than a million people, disbursing over a million dollars a year and managing a staff of 500 people. Dr. Pomeroy has a real business organization, in just the sense that Henry Ford has made a business organization. It is handled in every way on an economic basis; everybody who works for the department has to be efficient, and they are getting results. They get the results not only by proper administration but by the proper kind of intensive salesmanship and there is an immense amount of salesmanship to be done through the general practitioner. The general practitioner, involved in merely reparative processes, has little conception of preventive medicine. He can be reached through these health centers. In the economic administration of public health in Los Angeles County, these centers meet a definite need. In having a district organization for the community at large, there is the advantage of having a staff living and taking part in the local social activities and getting intimately acquainted with all local conditions. Among the staffs of these local health centers I have found that local staffs have a certain personality, just as distinct as that of different individuals. One has to approach each group of physicians in a way that fits their particular personal response to salesmanship of public health. I think there is another element that is going to contribute to the success of this health center movement. It is giving the general practitioner in each district a chance to become acquainted with his community needs and to broaden his point of view regarding medical and social welfare questions in general; and if he has sufficient interest in the work to come in and tell the public what it needs, and to convince the public that his standpoint is correct, he will save the day for himself. The physicians are given all the power of local government and local administration that is possible. The local practitioner is given a chance to get in touch with what is going on, the medical and health needs of his community, and, above all, the social needs of his community. He takes part in the solution of these problems.

DR. WILLIAM F. REASNER, Santa Monica, Calif.: For the past year we have operated our health center at Santa Monica. A site was donated by the people of the city and a building was put up by the county to accomplish the purposes which Dr. Pomeroy's paper indicated. The Santa Monica branch of the county medical society consists of about fifty-two members, fifty of whom are in active practice. Forty-eight of these members have been with us for the one year period as members of a voluntary clinic staff. During the one year we have not lost a man; even during the outbreak of influenza last fall we had only one man absent from his clinic hours. The exact status of the physicians in this program is that the medical society controls the question of who shall be treated, who shall treat, and when and how the patients shall be treated. It would be unfair to throw the question of who is eligible to treatment on the floor of any medical society. We submitted a composite table of the cost of living in previously surveyed parts of the county and asked the members to indicate an amount they thought fair for Santa Monica. A physician can refer a charity patient to us; we make the social survey and furnish complete equipment for treatment. We do not attempt volume business in order to reduce our overhead or cost of treatment. That would force us to compete with the private practicing physician. We are trying to convince the people of Santa Monica and in other centers of the value of their medical profession. We noticed in our work with babies that there were people who did not believe they could get their money's worth from a physician. With the complete consent of our medical staff, we decided to

reach those people by giving them a six weeks' ticket to our pediatric clinic. We believe that if we can take a baby early enough, in six weeks' treatment there will be no question of the value of the medical care of that child. Laboratory service is furnished to the physician whose patient cannot afford to pay for private laboratory service. The fact that a physician brings or sends a patient is conclusive evidence to us that that patient is unable to procure that service elsewhere. We contemplate having a roentgenogram of the chest of every child that we know has been exposed to tuberculosis at home. We expect to carry this plan through a five-year program.

DR. R. T. LEGGE, Berkeley, Calif.: I want to congratulate Dr. Pomeroy on this pioneer venture of his, in linking together preventive and curative medicine. I should like to ask Dr. Pomeroy whether the physicians who do the curative work at the health centers receive compensation; whether the admissions or the applications to the county hospital are cleared at the health centers on the recommendation of the director of the health center, and whether the hospital admissions in Los Angeles County have been greatly reduced since this splendid system of Dr. Pomeroy's was adopted.

DR. E. C. JUNGER, Soldier, Iowa: I am a general practitioner. You gentlemen are probably all specialists along public health and preventive lines. This is an age of specialties. Every one must be scientific. In Iowa we have quite a problem. We have not the large cities that California has, but we have about fifty-seven varieties of health organizations, and they all want to do their bit. We have not the organization to direct the work, and therefore there is a lot of wasted energy and the work of the health officer and of preventive medicine is not appreciated by the public. I have been out of school twenty-seven years. I have practiced in a little country town, and in twenty-seven years it is surprising how one's point of view on how to get results will change. We go through medical school where they teach certain things, and we naturally think when we get out that we must follow along those lines. We did not learn anything about preventive medicine. We were sent out to cure the sick. The people who need this message most are not here; the general practitioner is at home. We general practitioners have to know a little of everything; every practitioner is composed of about seventeen specialists. Somebody said that the remedies of the future will be diet, not drugs. Our main studies in school were physiology, pathology and therapeutics. We had so much faith in drugs that we did not think anything else could possibly compare with them and that is the reason we used drugs. But times are changing and men and women who are trying to keep up to date are beginning to think that they might use some things that are ahead of the average drug therapy. I do not use one third of the drugs I did when I first started out. Medical economics is partly to blame for this drugging. If we tell people to change their milk or to breathe or to drink water, or to do some of the things they should do, they will not pay us for that kind of advice. What are we going to do? We need to change the system, so that we may use our energies in the right direction and accomplish more. We are not preaching ourselves out of work when we preach prevention, any more than the preacher will preach himself out of the pulpit by telling his people to behave themselves. We can talk preventive medicine until we are baldheaded, but it seems so simple that people do not take much interest in it. They think they need pills and something in a bottle. This whole problem of future health lies in education.

DR. J. L. POMEROY, Los Angeles: Apropos of what Dr. Bennett said, I should like to correct a statement he made. I do not wish the impression to gain ground that what has been done has been due to my efforts entirely. I feel that the credit, if any, should be given to the splendid governing body that Los Angeles County has been so fortunate in having over a period of years. I think that the stability of government is one of the greatest fundamentals for public health progress. We in Los Angeles County are spending from twelve to fifteen times as much money for what I term end-results as for public health. In any organization, if one will add up to date the money the city, the county or the state government is spending in institution care of the insane, institution care of the tuberculous, outdoor relief care in the home, food, lodging and clothing, plus the costs of the various agencies and community welfare programs, with little sums here and there on bowlegged children, feebleminded children and so on, and compare that sum with what is being spent on preventive medicine and public health and adequate medical service, I believe one can sell this program. That is the thing I should like to emphasize, because what I have been able to do has been to sell that idea. Dr. Legge asked three definite questions. One was whether the physicians who do curative work receive compensation. The answer is no, they do not receive any definite compensation. They do receive an honorarium from moneys accruing to the staff from the fees of the clinic patients. We could hardly call that compensation. Our men are regarding it rather as discharging an obligation. The second question was whether the applicants are admitted to the county hospital direct from these health centers. Yes. We are part and parcel of the county government. Admissions to all other county institutions have been arranged so that our medical social service investigation is accepted, preventing this duplication. In that connection, if one would add the costs of end-results that I mentioned before to the costs of duplication of service, one would find some startling figures. The third question was in regard to reduction of admissions. We have been able as yet to make a definite showing only in relation to communicable disease. We have not had sufficient time to affect the more chronic conditions. We have cut the diphtheria rate in half in the last ten years, and we have reduced typhoid to the vanishing point. We have about two deaths per hundred thousand of population in our county. I am not going to cite other figures, but we have made a remarkable reduction in communicable disease and in infant mortality.

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THE ADMINISTRATION OF OXYGEN BY THE NASAL CATHETER *

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NEW YORK

The administration of oxygen by a catheter inserted in the nose was used in the late war for the treatment of pulmonary edema due to gas poisoning. Introduced by Stokes,[1] it was employed with variable results by Douglas,[1] Ryle,[1] Hamil,[1] and Hoover.[2] In general, the nasal catheter was considered less effective but more comfortable than the Haldane mask. In 1922 I [3] found it to be an effective method of administering oxygen to infants, in whom the oxygen consumption and tidal air were small. Subsequent experience demonstrated that the oxygen concentration of the inspired air could be increased to 30 per cent and the oxygen content of the arterial blood of patients with pneumonia could be considerably elevated if 2 liters a minute of oxygen was delivered through the catheter.[4]

Since that time I have studied the effect of 5 liters a minute of oxygen delivered through a double catheter. A catheter was inserted in each nostril as far as but not touching the nasopharynx and connected through a Y tube on the forehead with the source of oxygen. A third catheter was pushed through the nasal cavity, past the soft palate and into the pharynx for testing samples of the inspired air. With a patient breathing between forty and fifty times a minutes and having a tidal air between 250 and 300 cc., the oxygen concentration obtained averaged 38 per cent. A theoretical

* From the Department of Medicine, Columbia University College of Physicians and Surgeons, and the Presbyterian Hospital.

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2. Hoover, C. F.: Oxygen Therapy, J. A. M. A. **71**: 880 (Sept. 14) 1918.
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estimate of the oxygen concentration of the inspired air in a patient breathing at 40 a minute with a tidal air of 300 cc. is shown in the accompanying table.

If a patient has a respiratory rate of 50 and a tidal air of 250 cc., the theoretical concentration is also 37 per cent, thus checking in both instances with the actual determination of 38 per cent. It is obvious that these results in nasal catheter administration are dependent on the patient breathing through his nose and are not obtained when the patient breathes through his mouth.

It is my belief that the range of therapeutic dosage for oxygen chamber and oxygen tent should be between 40 and 60 per cent of oxygen. The possibility of securing 38 per cent of oxygen by the use of such a simple method as the nasal catheter renders it an important procedure for routine treatment both in the hospital and in the home. In order to secure these results, the following conditions are necessary:

1. A catheter of small diameter, such as a number 10 French, is to be preferred because the larger sizes are more uncomfortable and more apt to cause mouth breathing.

2. It is important to have the terminal one inch of the catheter perforated with six small holes, as the high rate of flow is better tolerated than when one hole is present. In the latter instance a vigorous stream of oxygen directed against the mucous membrane of the nasopharynx causes a burning painful sensation and may be responsible for the patient pulling the catheter out of the nose.

3. The catheter should be cleaned at least once every twelve hours.

4. It should be put in place by a physician or by the nurse after special instruction, being passed along the inferior surface of the nasal cavity until it strikes the posterior surface of the nasopharynx, then withdrawn one-half inch, passed over the forehead or cheek and fastened with adhesive tape.

Theoretical Estimate of Oxygen Concentration of Inspired Air

(a) Oxygen inflow through catheter per minute	5,000 cc.
(b) Oxygen inflow during each total respiration	125 cc.
(c) Oxygen admitted during each inspiration	62.5 cc.
(d) Tidal air	300 cc.
(e) Tidal air minus oxygen admitted	237.5 cc.
(f) Oxygen content of tidal air (corrected)	49.8 cc.
(g) Oxygen in inspired air (c + f)	112.3 cc.
(h) Oxygen concentration of inspired air	37.3%

5. When more than 3 liters a minute of oxygen is employed, it is usually more comfortable to insert a catheter into each nostril and connect them over the forehead by a glass Y tube.

6. The use of high pressure oxygen tanks is the only way to employ this kind of therapy with any assurance of a constant rate of flow. The low pressure tanks are quickly exhausted and very expensive, and make it difficult to establish a constant output because the diminishing pressure results in a gradually lessening flow. There is no disadvantage to the use of so-called commercial oxygen except that care is needed in the handling of the gage.

7. A calibrated gage has been designed for this purpose, calibrated to deliver from 1 to 10 liters a minute, for use only with high pressure oxygen tanks.[5]

620 West One Hundred and Sixty-Eighth Street.

5. These calibrated valves may be obtained from the Oxweld-Acetalene Company, or the Hoke Manufacturing Company, New York. Both firms give instruction in their use.

HEMATURIA AS A SYMPTOM OF PREGNANCY HYDRONEPHROSIS

REPORT OF CASE *

C. N. SWANSON, M.D.
DETROIT

Although hematuria is well recognized by urologists as a symptom of hydronephrosis, I have been unable to find any direct reference to its association with the hydronephrosis of pregnancy, in spite of the known frequency of that condition. Modern obstetric works deal specifically with hematuria during pregnancy and mention a variety of lesions to which it may be due, but make no note of simple hydronephrosis. Kretschmer,[1] in 1925, in a clinical study of hematuria, noted among 331 patients with hematuria of renal origin some in whom the essential lesion was a hydronephrosis, but he does not state that these patients were pregnant. Chiaventone[2] described an "essential hematuria" of pregnancy, and reference to his work is frequently made in discussions of hematuria occurring during gestation, although modern urologic methods had not then been perfected.

I have recently had the opportunity to observe and treat a patient with a marked hematuria which persisted during the last four months of pregnancy and the first two weeks of the puerperium, in whom no pathologic change other than hydronephrosis could be detected after several careful urologic examinations.

REPORT OF CASE

History.—M. C., a white woman, aged 33, was admitted to the Department of Urology, Nov. 28, 1927, because of "blood in the urine" for the past two weeks, and of "a slight ache in the back and low down on the right side" off and on for the past five months.

The patient's mother, who had had eleven full-term pregnancies, suffered from an intermittent, painless hematuria of varying degree during the last months of her last three pregnancies. The hematuria (gross blood but no clots) appeared earlier in succeeding pregnancies but always disappeared a few days before delivery. The mother was admitted to the hospital in March, 1928, because of hematuria of two months' duration. Examination showed blood coming from the left ureter, and pyelograms demonstrated hydronephrosis of both kidneys, especially the left. There was no evidence of tumor or of stone.

The patient's only sister had never been pregnant.

The family history was otherwise unimportant.

The patient had had five full-term pregnancies, the first four of which were normal, but in the fifth (1924), at the seventh month, there appeared an intermittent hematuria, which was never carefully investigated nor treated but which subsided completely seven days before delivery. At this time the urine would be bloody on perhaps one voiding during the day but clear at other times. No clots were passed. The urine was never so bloody as it had been with the present pregnancy.

The past history was otherwise negative except for a gynecologic operation (plastic and uterine suspension) in this hospital in 1918. At that time there was some backache across the kidney region, which was worse in the recumbent position. Urine examinations were negative.

Present Illness.—The last regular menstrual period began, June 21, 1927. Since the beginning of gestation there had been intermittent attacks of aching pain low down on the right side and in the right kidney region. The pain usually appeared at night and was relieved by standing erect. There were rarely

* From the Department of Obstetrics and Gynecology, State University of Iowa College of Medicine, Iowa City.

1. Kretschmer, H. L.: Hematuria: A Clinical Study Based on 933 Consecutive Cases, Surg. Gynec. Obst. **40**: 683-686 (May) 1925.

2. Chiaventone: De l'hématurie de la grossesse, Ann. de gynéc. et d'obst. **56**: 196-219, 1901.

more than one, occasionally two, attacks during a night, and the pain never persisted for more than a few minutes. Walking, riding and stooping had on a few occasions produced similar attacks during the day. The pain had been severe only once, during the night of November 26, the day before admission, when for ten minutes there was an acute stabbing pain in the right side and back.

Two weeks before admission the urine suddenly became bloody and had continued so until the present. The amount of blood passed varied, but the urine had never been entirely clear. Some clots had been passed at the end of urination, but no fishworm clots had been noted. There had been no chills or fever.

Examination.—General examination was negative except for the presence of a six lunar months' pregnancy. The abdomen was tender over both sides anteriorly, more so on the right, and there was some tenderness over both kidney regions, although the kidneys could not be palpated. The blood pressure was 110 systolic and 70 diastolic. The pulse rate was 80 per minute. The temperature was normal. Hemoglobin was 65 per cent; the red blood cell count, 4,000,000, and the white blood cell count, 8,800. The urine grossly was bloody; no sugar was present, and no casts were found.

Cystoscopic Examination.—Bladder capacity and force were normal. The bladder was negative for stone, tumor and evidence of infection. The ureteral orifices were normally located. Bloody urine spurted from the right ureter and clear urine from the left. There was no residual urine in either kidney pelvis. The capacity of the right pelvis was 15 cc., and of the left, 7 cc. Dilation of the right pelvis produced a pain similar to that of which the patient had complained.

Pyelograms showed slight hydronephrosis and hydro-ureter on the right with an apparent obstruction of the right ureter at the level of the pelvic brim. The left kidney and ureter were negative. No evidence of calculus was apparent.

Kidney Function.—Phenolsulphonphthalein given intravenously appeared from the left kidney after four and one-half minutes, and from the right kidney after five minutes. Within fifteen minutes from the time of appearance the right kidney had excreted 11.3 per cent, the left kidney 6.9 per cent, and there was 4.1 per cent of the dye in the bladder.

December 2, and again on December 9, the patient was examined cystoscopically and pyelograms were made. The observations were the same as previously, except that on the latter date a kink was noted in the lower third of the right ureter. The right ureter was dilated on this occasion until a number 8 catheter could be passed without difficulty.

Blood Tests.—December 15, various blood tests yielded the following results: venous blood clotting time (Brodie-Russell), four minutes; venous blood clotting time (capillary tube), four minutes; capillary blood clotting time (Brodie-Russell), three minutes forty-five seconds; capillary blood clotting time (capillary tube), four minutes; erythrocyte fragility, 0.42 and 0.36 per cent sodium chloride; prothrombin time, 3, 4, 4.5 and 5 minutes; platelet count, 190,000 per cubic millimeter; clot retractility good in two hours, and bleeding time (blotting paper), two minutes forty-five seconds.

Clinical Course.—The dilation of the ureter did not affect the bleeding. Fibrinogen subcutaneously (2 cc. at 10 a. m. and 2 cc. at 1:15 p. m.) on December 24 had no apparent effect. The temperature remained essentially normal, the highest point being 99.6 F. on December 6. The patient was discharged, December 30, to return in two weeks to the department of obstetrics and gynecology.

She was readmitted, Jan. 15, 1928, to the obstetric division. The blood Wassermann reaction was negative. The blood was of group III (Moss). Weekly antepartum examinations revealed occasional very slight edema of the feet and legs; the blood pressure ranged from 80 systolic and 40 diastolic to 120 systolic and 70 diastolic; the urine was always grossly bloody, without sugar or casts. Occasional slight attacks of pain occurred in the right kidney region. No symptoms of toxemia were observed. The hemoglobin (Dare) varied from 40 per cent on February 5 to 70 per cent on February 26. The red blood cell count ranged from 3,500,000 (February 5) to 4,000,000 (February 1), and the white blood cell count from 9,800 (January 16) to 13,000 (January 26).

February 1 and again February 3, the patient was given 20 cc. of 30 per cent sodium citrate solution intravenously without any appreciable effect on the amount of bleeding. Otherwise treatment consisted in complete rest in bed and a high-iron diet.

By the middle of March the fetus seemed of average size and labor was induced, March 19, by means of a Voorhees bag. After a short labor, a child weighing 3,920 Gm. was born spontaneously.

The puerperium was afebrile, the highest temperature being 99.4 F. Until April 1, the twelfth day post partum, the urine was the same as before delivery with gross blood present at each voiding. Occasional catheterized specimens invariably showed macroscopic blood. April 2, thirteen days after delivery, the twenty-four hour specimen contained considerably less blood, and, on the following day, one voiding showed no gross blood. April 4, fifteen days post partum, there was no macroscopic blood, but blood cells were visible microscopically. The urine finally became free from blood microscopically and chemically, April 7, the eighteenth day post partum, and has remained so since.

The red blood cell count and the hemoglobin rose after delivery, and on discharge (April 16) were practically normal—hemoglobin 72 per cent (Sahli) and red cell count 4,000,000.

Follow-up Examination.—June 5, 1928, the patient reported that there had not been any hematuria since discharge. There had been some aching pain in the right kidney region, but not so severe as during pregnancy. Cystoscopy revealed practically the same condition as before delivery, except for the absence of blood in the urine. Pyelograms showed that the right kidney pelvis was somewhat smaller than previously, but that there had been no change in the left kidney pelvis.

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COMMENT

It would seem that serious disease of the genito-urinary tract has been eliminated as a possible explanation for the hematuria in this patient, and that a blood dyscrasia has been ruled out equally well. Whatever hypothesis may be offered cannot be substantiated, but one is led to believe that the blood vessels (capillaries) in the kidney pelvis must have undergone some temporary alteration (passive congestion), which made them permeable to blood cells over a considerable period of time, while the definite time relationship to gestation suggests that the pregnancy was actually a causal factor. The occurrence of hematuria with hydronephrosis, especially during pregnancy, in both mother and daughter suggests that this peculiarity may have been directly transmitted.

3001 West Grand Boulevard.

The Practicing Physician and Medical Progress.—Every physician who is engaged in the practice of medicine owes it to his patient to keep informed of the advances in medicine. I do not mean by this that everything which appears in medical journals should be accepted as true. Unfortunately, there is too much written. It is, however, essential that the physician subscribe to one or two standard medical journals and that he familiarize himself with the articles which appear in them. It is also essential that he attend medical meetings, in order that he may not become too provincial and self-satisfied. The contact with his colleagues at such meetings is not only instructive but also stimulating. The physician who would attempt to treat diabetes at the present time without ever employing insulin or the individual who would treat pernicious anemia without any knowledge of the "liver diet" is not fulfilling his obligation to his patient. Patients, themselves, are often responsible for their physician's not attending medical society meetings as he feels it is an injustice to go away. Patients owe it to their physician to permit him to attend clinics and medical meetings, as they are the ones who will profit by such procedures.—Ochsner, Alton: The Physician and His Patient: Their Reciprocal Relations, *New Orleans M. & S. J.*, November, 1929.

ASEPTIC (LYMPHOCYTIC) MENINGITIS *

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AND
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BOSTON

Patients showing a severe lymphocytic pleocytosis in the cerebrospinal fluid form a small but important group under the general classification of meningitis. Greenfield and Carmichael [1] state that they have never encountered a case of extreme mononuclear pleocytosis, that is, one with more than 250 mononuclear cells per cubic millimeter, and cases showing from 50 to 250 cells are rare. In the latter group herpes zoster, disseminated sclerosis and epidemic encephalitis give rise to cell counts above 50 per cubic millimeter without the presence of polymorphonuclear cells. A similar condition may be found in trypanosomiasis. A few cells, from 10 to 15, are commonly found in polyneuritis, cerebral abscess and such general diseases as mumps, whooping cough and malaria, but rarely in tuberculous meningitis. The spinal fluid in tuberculous meningitis, however, is most likely to be confused with the syndrome to be described here.

Five patients with a definite lymphocytic formula in the spinal fluid have recently been observed in the neurologic wards of the Massachusetts General Hospital.[2] They all entered the hospital with a complaint of severe headache of sudden onset, all vomited repeatedly, two severely, and three had a course of moderate fever lasting for from two to three weeks. One patient on entrance was stuporous, one was delirious, and two had retention of urine. There was some degree of blurring of the optic disks in all cases, although only one showed papilledema. The spinal fluid pressure was higher than normal in all five cases, the average being about 275 mm. of water; the cells, exclusively lymphocytes, were increased, in one case to more than 500 per cubic millimeter, from 200 to 300 being the average. Protein in the spinal fluid was increased slightly in the early stages of the disease; the sugar and chloride estimations usually were within normal limits. The disease in each instance ran a course of a subacute nature, and all the patients recovered.

TABLE 1.—*Spinal Fluid Observations in Case 1.**

Day	Date	Cells	Initial Pressure	Total Protein	Sugar	Chlorides
1st	8/13/28	143	170	120	54	705
2d	8/14/28	134	510	47	70	714
3d	8/15/28	...	165	67	70	698
4th	8/16/28	233	95	57	85	714
5th	8/17/28	154	120	57	70	690
7th	8/19/28	133	108	60	82	680
8th	8/20/28	496	50	80	59	848
9th	8/21/28	199	120	67	71	666
10th	8/22/28	219	160	56	65	660
11th	8/23/28	93	110	50	63	...
12th	8/24/28	58	...	74	65	...
13th	8/25/28	48	160	44	52	679
15th	8/27/28	44	100	42	52	687
16th	8/28/28	73	120	46	..	...
17th	8/29/28	16	110	47	..	...
19th	8/31/28	26	90	48	61	781
22d	9/ 3/28	27	105	52	..	...
24th	9/ 5/28	35	75	43	..	...
28th	9/ 7/28	9	60	43	..	...

* In the tables, day indicates days in the hospital after the first spinal fluid examination. The cells in all five cases and on each examination were exclusively lymphocytes, mostly of the small type. The initial pressure is recorded in millimeters of water; the Queckenstedt test was always negative. The total protein, sugar and chlorides are reported in milligrams per hundred cubic centimeters. There was no clot in any fluid; they were all colorless and free from organisms when examined by smear.

* From the neurologic department, Massachusetts General Hospital.

* Read before the Section on Nervous and Mental Diseases at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 10, 1929.

1. Greenfield, J. G., and Carmichael, E. A.: The Cerebrospinal Fluid in Clinical Diagnosis, London, Macmillan Company, 1925.

2. A preliminary report on three cases, one of which was later considered as not belonging to this group, appeared in the New England Journal of Medicine **200**: 633-634 (March 28) 1929.

REPORT OF CASES

CASE 1.—L. E., a woman, aged 19, married, entered the hospital, Aug. 13, 1928, with the complaint of frontal headache. About four weeks before entrance she had had all her upper teeth removed and three of the lower ones because they were said to be abscessed. Ten days later, after exposure to wet weather, she developed a severe headache. The headache increased in intensity and was associated with a rise in temperature to about 102 F. Her neck was stiff and sore and she vomited four or five times before entering the hospital. There had been retention of urine for three days, necessitating catheterization. Her past history was not important.

TABLE 2.—*Spinal Fluid Observations in Case 2*

Day	Date	Cells	Initial Pressure	Total Protein	Sugar	Chlorides
1st	8/23/28	233	550	73	75	641
2d	8/24/28	288	200	52	54	638
3d	8/25/28	222	210	80	54	638
4th	8/26/28	...	190	93	63	679
5th	8/27/28	227	170	83	53	679
6th	8/28/28	214	150	91	..	...
7th	8/29/28	214	120	73	..	...
9th	8/31/28	117	250	64	46	709
11th	9/ 2/28	201	180	64	..	...
13th	9/ 4/28	109	200	64	53	...
17th	9/ 8/28	95	210	61	..	...
23d	9/14/28	28	220	39	..	...

On entrance, examination showed stiffness of the neck, a bilateral Kernig sign and some inequality of the pupils. The disk margins were slightly blurred. The temperature was elevated and ran an irregular course for the first two weeks in the hospital, varying from 97 to 102. During her stay in the hospital she had considerable headache, blurring of vision and diplopia due to weakness of both external rectus muscles. The fundi were normal. She was irritable and emotional. On repeated lumbar punctures her symptoms of headache, irritability, stiffness of the neck and diplopia disappeared and she was able to be discharged, September 12.

The observations following lumbar puncture are reported in table 1.[3] The Wassermann reaction on a number of samples of spinal fluid was negative; culture of the fluid gave no growth; guinea-pig inoculations for tuberculosis were negative. The colloidal gold curve on the first fluid was 1112211000; it was not repeated.

When last seen, May 8, 1929, the patient showed no signs of disease.

CASE 2.—Mrs. I. G., a woman, aged 35, entered the hospital, Aug. 23, 1928, with a complaint of occipital headache, which had begun ten days before entrance and was associated with vomiting. Her temperature had been elevated to about 101 F. in the afternoons.

On entrance she was semistuporous, with marked irritability and resistance to examination. Her neck was slightly stiff; the Kernig sign was not definitely positive. The disk margins were slightly blurred. She was noisy and had a great many complaints. There was some retention of urine and she had to be catheterized. Her temperature in the hospital varied from 98 to 100. She was relieved by lumbar puncture, which was done twelve times in twenty-three days. The essential observations are reported in table 2. Culture of the spinal fluid showed no growth; a number of Wassermann tests were negative and the guinea-pig test for tuberculosis was also negative. The colloidal gold curve on the first fluid was 1122332100; it was not repeated until the seventeenth day, when it was 1112321000.

3. The spinal fluid chemical examinations were made by Miss Ethelyn Chapman and Miss Bernice Alexander, B.S., spinal fluid laboratory, Massachusetts General Hospital.

May 1, 1929, the patient reported by letter that her health was fair and that she had gained in weight.

CASE 3.—J. F., a man, aged 35, married, entered the hospital Feb. 12, 1929, complaining of headache and vomiting. His family history was not important; he had been married three years and had one child. He was keeper of the grounds at a boys' school. For twenty years he had had mild morning

TABLE 3.—*Spinal Fluid Observations in Case 3*

Day	Date	Cells	Initial Pressure	Total Protein	Sugar	Chlorides	Colloidal Gold
1st	2/12/29	185	150	108	60	733	0001222210
3d	2/15/29	165	170	170	60	784	1111232211
4th	2/16/29	131	180	170	..	784	.....
6th	2/18/29	180	120	216	95	784	1111123332
8th	2/21/29	123	125	240	74	782	0011233322
11th	2/23/29	147	85	160	82	729	0001122321
13th	2/25/29	100	200	160	67	725	.....
17th	3/ 1/29	134	160	148	87	726	.....
21st	3/ 5/29	101	160	118	61	772	0000122211
23d	3/ 7/29	63	120	114	87	697	0000122100
25th	3/ 9/29	111	120	105	74	729	0000122211
27th	3/12/29	128	110	168	43	732	0000122110
30th	3/15/29	58	165	103	73	736	0000122000
38th	3/23/29	25	160	85	..	766	0000211000

headaches of the migraine type, followed by vomiting. They occurred two or three times a year. For two years he had suffered from blurring of vision and photophobia; there had been no diplopia.

His present illness began two weeks before admission, with a severe attack of headache and vomiting. At this time he next day he spent in bed; the day following he felt well and walked about the house. The third night after the onset, the was unable to speak, though he was not unconscious. The headache returned, mostly in the right frontal region, accompanied by nausea and vomiting; he felt well the next morning. These nightly attacks of headache, nausea and vomiting continued for ten days, until admission. One week before entering the hospital he had an attack, lasting half an hour, of weakness and paresthesia of the right arm and left leg. The night before admission he was delirious. The headache and vomiting continued.

The patient was well developed and nourished; the liver was palpable below the costal margin. The optic disks were pink, but the margins were distinct and there was no papilledema and no engorgement of the vessels; the other cranial nerves were normal. Motion, sensation and coordination of the extremities were normal, but the reflexes were slightly altered, the left knee jerk and ankle jerk being greater than the right. There was no Babinski response. Kernig's sign and stiffness of the neck were absent. The patient was clear mentally. The blood pressure was 100 systolic and 70 diastolic; the temperature 98; the pulse 90; respirations 20; urinalysis negative, and the white cell count 6,500. On roentgen examination the lung fields were clear; the hilum shadows were only moderately increased; there was no evidence of disease in the sinuses, teeth or mastoid cells and the skull was normal.

TABLE 4.—*Spinal Fluid Observations in Case 4*

Day	Date	Cells	Initial Pressure	Total Protein	Sugar	Chlorides	Colloidal Gold
1st	2/13/29	300	250	87	(44)	...	0012221000
3d	2/15/29	380	220	78	54	...	1124432100
4th	2/16/29	333	215	65	..	767	.....
6th	2/18/29	270	250	77	61	763	0012421000
8th	2/20/29	135	200	66	62	769	0012321100
11th	2/23/29	113	55	53	59	...	0012222110
13th	2/27/29	116	30	49	62	726	.....
15th	2/27/29	60	165	..	..	....	.....
17th	3/ 1/29	43	320	55	70	738	.....
21st	3/ 5/29	32	125	56	63	782	0012210000
25th	3/ 9/29	13	150	54	61	754	0001221000
27th	3/11/29	7	120	51	70	742	0001110000

The conditions disclosed by lumbar puncture are shown in table 3. The Wassermann reaction in the spinal fluid was weakly positive on one examination, the second, and negative eleven times. Guinea-pig inoculation gave negative results for tuberculosis. Symptomatically, improvement was slow; the headache lasted from two to three weeks. The patient left the hospital well, March 23, 1929. Two weeks later he was seen again, without headache or other symptoms.

CASE 4.—S. H., a man, aged 40, married, an insurance adjuster, entered the hospital, Feb. 11, 1929, complaining of headaches. His mother, aged 69, who was living and well, had had diabetes for four years; two siblings had chorea. He had been married nineteen years but there had been no children. At 9 years of age he had mumps, probably accompanied by orchitis, followed by nervousness and transient diplopia (?). About four weeks before admission he had a cold accompanied by a cough but without fever or gastro-intestinal symptoms.

His present illness started two weeks before admission with a severe right-sided headache. He stopped work for a few days, then returned to work still feeling a little "shaky". Ten days before admission, following the taking of considerable whisky the night before, he awoke with a severe headache, which continued. Five days before admission he went to bed. Three days before admission he began to feel worse and came to the outpatient department. At that time the margins of both optic disks were blurred, more in the left; there was beginning papilledema. On admission there was no weakness, incoordination or loss of sensation of the extremities. The tendon reflexes were lively and equal on both sides; there was no Babinski sign or ankle clonus, and no stiffness of the neck or Kernig's sign.

While the patient was in the hospital, repeated lumbar punctures were done; the results are shown in table 4. A culture of the second sample of spinal fluid withdrawn was negative; the Wassermann reaction was negative on eight of the fluids. Guinea-pig inoculation was negative, once, for tuberculosis.

TABLE 5.—*Spinal Fluid Observations in Case 5*

Day	Date	Cells	Initial Pressure	Total Protein	Sugar	Chlorides	Colloidal Gold
1st	3/ 5/29	530	230	59	75	...	.....
3d	3/ 7/29	750	170	78	64	765	0012211000
7th	3/11/19	281	125	77	40	736	0011211000
11th	3/15/29	649	100	80	48	734	0001122100
14th	3/18/29	620	0	82	56.5	...	.....
22d	3/27/29	96	130	67	62	736	5555433210
24d	4/ 2/29	35	140	48	49	802	5554421000

The fundi gradually returned to normal except for slight haziness of the disk margins of the left eye. The patient was well clinically before the spinal fluid had returned to normal. Some infected teeth were removed before he left the hospital, March 11, 1929. A week later he appeared well.

CASE 5.—E. R., a girl, aged 15, single, entered the hospital March 5, 1929, complaining of headache and vomiting. Her family history was not important. She had had measles, mumps, chickenpox and whooping cough; a year before she had been sick for a week with sore throat; eight months before she was in bed two weeks with "stomach poisoning," and two months before she had had grip but recovered completely.

Her present illness began five days before admission with nausea and vomiting, followed by headache. The vomiting continued, with some abdominal pain and weakness of the legs. Her physician found some haziness of the optic disks; the spinal fluid pressure, on lumbar puncture, was 230 mm. of water. There were 530 lymphocytes per cubic millimeter; 59 mg. of protein, and 75 mg. of sugar per hundred cubic centimeters. She entered the hospital with a diagnosis of poliomyelitis.

The right optic disk margins were much blurred, without papilledema, and the vessels were engorged; the left fundus was normal. There was no paralysis, either motor or sensory. All the tendon reflexes of the arms and legs were present but very sluggish. The abdominals were present; there was normal plantar flexion. The urine was normal; the white cell count 7,000 per cubic millimeter; the temperature 99 F.; the pulse 90, and respirations 20. On roentgen examination the sinuses were clear; there was a retained root with abscess formation in the region of the right lower bicuspid; the lungs were normal; the skull showed no abnormalities, and no evidence of disease was seen in the spine. The day of admission the temperature rose to 101 F., ran an irregular course for six days, fell to normal, and remained so except for two rises to 100.

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A blood count, done six days after admission, showed the white cell count to be 8,000; hemoglobin 80 per cent, and red cell count 4,900,000; a smear showed 53 per cent polymorphonuclears; 20 per cent small lymphocytes; 23 per cent large lymphocytes; 4 per cent eosinophils, and no basophils. The hospital course was almost uneventful. The patient's headaches were nearly always relieved by lumbar puncture. Once she vomited. The results of spinal fluid examinations are shown in table 5. The Wassermann reaction was negative on five examinations; and guinea-pig inoculation was negative for tuberculosis.

COMMENT

A few similar cases have been reported in the literature, mainly by Wallgren of the Children's Hospital, Gothenburg, Sweden. In his first paper [4] only one case is definitely of the same type as those described here. The spinal fluid contained 120 lymphocytes and the pressure was increased to 260 mm. of water. Three weeks later, only 10 cells were found. The patient, a child of 5 years, recovered in less than a month. Wallgren considered the disease as possibly a new type of infection, although it seemed likely that it had some vague relation to epidemic poliomyelitis or encephalitis. In a second paper [5] the same author reports two more cases. All of his patients were thought to have tuberculous meningitis at the onset of their disease. The probably epidemic character of the disease and its relation to previous epidemics are referred to in another paper by Wallgren.[6]

The cases reported by us occurred in August and February and the disease may possibly have a seasonal incidence. They were not considered contagious; no other cases were reported in Boston at the same time, so far as we have been able to ascertain. All the patients were under 40 years of age, the youngest being 15 years; three were female, two male.

SUMMARY

The type of meningitis described here, of which five cases are reported, is characterized by an acute but relatively mild onset, with headache, vomiting and moderate fever. The disease is self-limited, lasting from three to six weeks. Recovery takes place without residual paralysis.

The cerebrospinal fluid showed a marked lymphocytic pleocytosis, without polymorphonuclear cells. The cells may reach 500 or more per cubic millimeter. Protein in the fluid is slightly increased, but the sugar and chloride content do not vary from the average range. The colloidal gold curve suggests meningitis.

Tuberculous meningitis is usually suggested by the clinical appearance and the early cerebrospinal fluid reactions. The fluid, however, does not clot, bacilli are not demonstrable, and the sugar content remains high.

ABSTRACT OF DISCUSSION

DR. EDWIN G. ZABRISKIE, New York: I should like to ask the authors whether, in addition to the inoculation of guinea-pigs with tubercle bacilli, any other tests were made which might in any way indicate the presence of a nonfiltrable virus of the syphilitic or poliomyelitis types. During an epidemic of poliomyelitis in 1912 or 1913 near New York, I saw a boy whose only complaint was malaise. On examination, one knee jerk was found completely absent and the other was obtained only with great difficulty. The spinal fluid contained 800 cells. He made an uneventful recovery with no residual symptoms at all. I had an opportunity to examine the boy four months later and found that he had no other sign. Some very interesting work has been done by the Rockefeller Institute along this very line. The fluid of a syphilitic man, not a neurosyphilitic, contained some virus which was communicable for twelve generations of experimental animals. The nature of this virus was never determined. In the absence of any other data, I should be strongly inclined to consider the cases reported here as of the nonfiltrable virus type, such as poliomyelitis.

DR. GEORGE HALL, Chicago: Drs. Viets and Watts exclude many of the other forms of meningitis when they include the word "lymphocytic" in the title of their paper, as the majority of the cases of meningitis, as is well known, contain many polymorphonuclear leukocytes in the spinal fluid. They will agree, however, that the number of cases they report is not large enough on which to establish the diagnosis of aseptic lymphocytic meningitis. One can find a similar number of lymphocytes in the spinal fluid in many cases of syphilis. I am also wondering whether or not many cases similar to those reported may not be diagnosed as meningitis, with the later discovery that the patient has a residual paralysis of an arm or a leg, indicating that the diagnosis should really have been that of poliomyelitis. It is a fact also that in some cases of tuberculous meningitis recovery does occur, and of course in some instances the lymphocytes are the characteristic cells found in the spinal fluid. One other thing which should attract our attention is that the authors mention, in one case, a rather low cell count in the beginning which gradually increased. Such an increase might be brought about mechanically by repeating the spinal punctures, thus producing mechanically, as I have stated, an aseptic type of meningitis. The sugar content, if I remember correctly, was somewhat low in one of these cases, which also indicates the possibility of its being of tuberculous origin. In many instances also of the latent form of syphilis the spinal fluid may show a negative Wassermann reaction, so that it may be difficult to eliminate syphilis as the factor in such cases. Consequently, it seems to me that one must observe considerable care in establishing a special class and in speaking of it as aseptic lymphocytic meningitis because of the different factors which may arise in the production of the lymphocytes.

DR. HENRY R. VIETS, Boston: Dr. Zabriskie asked about tests for the nonfiltrable virus. Nothing was done along that line. Dr. Hall's remarks interest me a great deal because that is exactly what we have been thinking about in relation to the etiology of these cases. Are these possibly a type of syphilitic reaction with a negative Wassermann reaction? The tests were all negative. The patients all recovered spontaneously, which one would not ordinarily expect in syphilitic disease, without some form of treatment. The other etiologic factors that were considered were diseases such as mumps, that is, general infections. We found no signs of them. No patient had any signs of residual paralysis, so we felt that poliomyelitis was not justified as a diagnosis. I do not know what the etiology is. I am not even sure that the patients should be classed as a group, and I agree with Dr. Hall that possibly they did not present a definite type of meningitis, although the five cases did run a definite course.

4. Wallgren, A.: Une nouvelle maladie infectieuse du système nerveux central (Meningite aseptique aigue), Acta Paediat. **4**: 158-182, 1925.
5. Wallgren, A.: Contribution à la casuistique des meningites pseudo-tuberculeuses, Acta med. Scandinav. **65**: 722-730, 1927.
6. Wallgren, A.: Eine eigenartige Form von epidemischer Meningitis (Meningitis "aseptica" acuta), Wien. Arch. f. inn. Med. **12**: 297-312 (Feb.) 1926.

Eradication of Typhoid.—Much progress has been made. In the lifetime of many of those here present, profound changes have taken place in medicine. The typhoid wards, common in many hospitals in my student days, are now a thing of the past. Three decades ago, in the larger hospitals, the student had the opportunity of seeing within a short space of time the great majority of the various complications of this dreaded disease. Now he is fortunate if he can establish a superficial acquaintance with it, supplementing his meager bedside knowledge with textbook descriptions of the varying forms. This change has been brought about by the discovery of the cause of the disease, the mode of transmission, attention to water supply and, in a large measure, by the education of the public in the commonly employed protective measures, including the use of typhoid vaccine. The more enlightened public is now demanding this protection on suitable occasions.—Gaenslen, F. J.: Preventive Medicine, *Wisconsin M. J.*, October, 1929.

SPINAL ARTHRITIS

AN INDUSTRIAL HAZARD *

LOUIS W. ALLARD, M.D.
Orthopedic Surgeon, St. Vincent's Hospital School
BILLINGS, MONT.

Spinal arthritis has long been recognized as a cause of discomfort, disability and deformity. The old textbook picture is quite familiar, and these extreme cases are encountered just often enough to give the impression that arthritis of the spine is rather rare. Modern roentgen technic has made it convenient to study spines more closely, leading to a surprising revelation of the frequency of spinal disease, especially in relation to industrial disabilities involving the spine.

During the past few years, while I was endeavoring to diagnose and rate obstinate cases of spinal disease and their vexing symptom complexes, in which the disability seems entirely out of proportion to the injury, spinal arthritis entered so frequently into the diagnosis that I feared I was developing a hobby complex. A search of textbooks and of the literature brought to light valuable information regarding its etiology, pathology, diagnosis and treatment but did not give much information relative to its prevalence and relation to industrial disability. To obtain this information it seemed necessary to consult those who were handling large numbers of industrial disabilities. Questionnaires were sent to most of the industrial commissions and a few of the insurance companies. At the same time inquiries were sent to orthopedic surgeons scattered throughout the industrial centers of the United States. Opinions and statistics covering the following points were requested:

The prevalence of spinal arthritis with and without symptoms as shown by roentgen plates.

The frequency with which spinal arthritis was found in relation to such symptom entities as sciatica, neuritis and backache.

The relation of back injuries aside from fractures to spinal arthritis.

At the same time opinions were requested relative to the advisability of more thorough examination including roentgenograms of the spines of prospective employees for certain occupations, such as mining and railroading, with the idea of selective employment. Would such examination be economically and sociologically sound?

Thirty-six orthopedic surgeons and most of the industrial commissions responded. Statistics were not obtainable. The industrial boards stated that back injuries were not reported in terms of arthritis, while the surgeons replied that they would be put to the laborious task of searching their records, which was not practical. However, the information and opinions gathered from such reliable sources were sufficient to justify preliminary conclusions. Therefore, from personal experience, a review of the literature, and a study of the opinions of industrial boards and orthopedic surgeons, the following summary was made:

Spinal arthritis in its various types and stages is a common disease of the adult. Garvin, in a review of about 2,000 roentgenograms of the spine taken at the Mayo Clinic in subjects over 50 years of age, for conditions other than spinal, being mostly of the urinary tract, found that 67 per cent of the men and 40 per cent of the women had hypertrophic arthritis of the spine. Practically all the surgeons stated that arthritis was a frequent finding in spines of the middle aged examined roentgenographically.

In England, rheumatism has become such a problem that the ministry of health has requested the British Red Cross to establish centers for the study and treatment of the condition. Sir Robert Jones estimates that at least 10 per cent of the patients seen at clinics suffer from deformities or troubles due to rheumatism. This statement, taken from a recent number of the *Cripple*, published in England, does not differentiate spinal arthritis, but it is safe to assume its presence among the other forms.

Arthritis of the spine would seem to be a disease of adults. In roentgenograms it begins to show up in the late twenties and with increasing frequency as the age period advances. Arthritic and bony changes must be quite advanced to be demonstrable in a roentgenogram taken through heavy body tissue; therefore, it is already in a chronic stage. The changes that take place are slow and the disease may become quiescent in any period of its course. From these facts it might be suspected that the primary cause may in many occurrences date back to some infection or systemic disturbance in youth or childhood.

It is most commonly found in male laborers for the simple reason that this class of people from childhood through their active life are constantly subject to, and are most apt to neglect, contributing factors; i. e., focal infection, metabolic disturbances, intestinal intoxications, postural strains and repeated traumas.

The laborer with spinal arthritis is by his very occupation exposed to the danger of accidental disturbance of arthritic adhesions. Often relatively minor accidents, such as a twist or fall that would not affect a normal spine, produce disabilities of varying duration, even to permanent incapacity. No doubt a good percentage of industrial disabilities variously reported as neuritis, lumbago, back sprain, sciatica and even sacroiliac strain have their origin in recrudesence of latent arthritis following disturbance of the partially fused segments. As it is impossible to secure statistical evidence of the part arthritis takes in this class of disability, we must be satisfied with the presumptive evidence of general opinion.

Reports secured from several commissions covering more than 24,000 back injuries aside from fractures show that from 6 to 30 per cent of all claims result from back injuries. One board writes:

> Speaking generally, the most annoying thing we have to deal with is back injuries and concerning which we get a wide differentiation of opinion from the medical profession.

Another states:

> There are a large number of such claims made annually which seem to be founded largely upon the fact that sprains and injuries that would be inconsequential to a normal spine become disabilities of greater or less duration, varying from a few weeks to total permanent disability. In our experience there have not been a large number in total permanent disability.

A third commission handling 18,000 claims annually states:

> There are a great many back injuries, and a great number appearing here for physical examination because of back injuries have arthritis. Periods of disability run all the way from three or four weeks in minor cases to permanent partial disability. The outstanding feature is that men with arthritis invariably suffer longer disability than those who do not show evidence of the disease.

* Read before the Section on Orthopedic Surgery at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 12, 1929.

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The surgeons were practically unanimous in their opinion that arthritis is primarily responsible for many back injuries. Their comments are typically as follows:

Industrial type of back complaint over three months' duration in the absence of fracture shows an 80 per cent hypertrophic arthritis.

In my opinion the chronicity of a majority of back injuries is due to an already existing or provoked spinal arthritis.

Arthritis is a highly important factor in disabilities of spine origin.

As a general résumé of my observation, nearly 100 per cent of men past middle age who sustain injuries of the spine have some element of arthritis present which greatly prolongs convalescence or places them on the pension roll.

It is an accepted fact that many well defined cases of arthritis from a roentgenologic standpoint are symptomless and will remain so unless disturbed. Garvin in his report states that 74 per cent of the men and 61 per cent of the women with hypertrophic arthritis gave none of the symptoms that usually follow arthritis. Conversely, many well defined symptoms of radicular irritation do not present roentgen evidence of arthritis. In this group it can logically be assumed that the periarticular inflammation of an early arthritis is probably responsible. What other condition can so acceptably explain the symptoms?

It would seem from the evidence obtained in this preliminary survey that spinal arthritis is a common condition in working men, and also that it takes no small part in the production of disability. Evidently a problem has arisen that should be investigated in greater detail. Prevention is the first thought, but how to prevent the development of a condition of uncertain etiology, an insidious onset and a chronic progression is at present beyond solution. We can treat the conditions only as we find them. Examination of prospective employees in certain occupations exposing individuals to unusual strain, followed by periodic check-ups and assignment of those markedly affected to less hazardous employment would doubtless prevent a good percentage of the painful disabilities that are drawing heavily on compensation funds. Elimination of patients with involvement both with and without symptoms from certain occupations must be cautiously approached with the idea of selective employment. No doubt it would be a distinct advantage to employers and to industrial insurance.

Patients with known disease, warned of their condition and its dangers, would probably be more careful of themselves and be content with less hazardous employment even at a sacrifice of the higher wage—a practice that has worked out quite satisfactorily in cardiac, blood pressure and other physiologic hazards. This should satisfy the commissioner of a large state, who writes:

It is our opinion that it is financially worth while from the standpoint of the employer to have careful examination, including x-ray, because the effects of slight injuries to such persons are very possible. On the other hand it would be a matter of serious regret if such employment examination should result in an "employment junk heap."

Most industrial boards take this position.

The majority of the surgeons consulted favored selective employment for patients known to be arthritic, while a few seriously questioned its practicability. In the words of one surgeon with a large industrial experience: "Any man and every man is entitled to earn his living, provided only that his physical defects do not endanger himself, others or the community. Industry must always be content with the average, not the perfect specimen."

CONCLUSIONS

Spinal arthritis in its various types is a common affliction of adults, especially the laborer.

Extensive arthritis of the spine may be found without symptoms.

Symptomatic arthritis in its incipience is without roentgen evidence.

The discomforts and disabilities from spinal arthritis in industrial injuries are largely due to disturbance of the partially fused joints.

Arthritic subjects are prone to disability of greater or less duration from injuries that would not affect a normal person.

Disabilities complicated by arthritis occasion a longer convalescence than disabilities occurring in normal spines.

The victim of arthritis is not a normal man. His efficiency is lowered. He is awkward, often distracted by his discomfort, easily fatigued, and an easy prey to minor accidents. He is an industrial hazard.

Patients with recognized arthritis, properly advised, may be preserved for years of usefulness, with a big saving to industrial insurance.

England is developing special clinics to take care of a rheumatic problem which complicates nearly 10 per cent of the clinical material. America with similar racial and social conditions may be laboring under a similar condition.

ABSTRACT OF DISCUSSION

DR. E. J. BERKHEISER, Chicago: We all know how common it is for patients to have an extensive arthritis of the spine without any subjective symptoms. We also know, especially in the early cases of spinal arthritis, that the individual may have a great deal of discomfort without any apparent cause. We feel that all the employees of industrial concerns should be subjected to a physical examination, including a thorough history previous to disability and to the physical examination itself, with a roentgenogram of the vertebral column. We feel that this will do good in two directions. In the first place, the individual who is not conscious of the pathologic condition of his back may then have it taken care of and with certain protective measures may be able to avoid greater disability in the future. It will also work in the opposite direction to the benefit of the industry in that the individual will know that he has been examined and that there is a definite record, especially of his vertebral column. It will exert a good psychologic and mental influence, especially on the person who is afflicted with compensationitis.

DR. WALTER G. STERN, Cleveland: I agree heartily with the speaker that arthritis of the spine is the commonest cause of so-called low back pains. I do not believe in sacro-iliac slips and displacements and all that sort of thing but rather that in the vast majority of cases it will be demonstrated that the symptoms are due to arthritis of the lumbosacral and sacro-iliac joints. From the experience of two of Ohio's largest factories employing together about 35,000 employees, the employers are not satisfied that it pays to make roentgenograms of the spines of their employees or applicants and to reject those who show arthritis of the spine. A comparison of the experience of the larger employers of labor, in the vicinity of Cleveland and Akron, Ohio, where one of the larger steel corporations had instituted the practice of roentgen examination of the spines of its employees, showed that the incidence of arthritis as a complication of spinal injuries in the larger companies was not a sufficiently costly factor to warrant the expenditure of the money that the steel corporation paid for the routine examination of employees. These large employers of labor believe that every man ought to be given the privilege of a suitable occupa-

tion, and in these days of extravagant living they believe that the employee should be able to seek the highest paid employment that he can possibly fit himself for as long as he is in physical condition to carry out the labor assigned him. They do not believe that spinal arthritis as may be shown in the roentgen examination of incoming employees is a sufficient cause for rejection. I deplore the word "compensationitis" because it seems to me that we too easily overlook several important factors. It is true that men will ask for excessive compensation when they are hurt, from industrial commissions, employers or their own insurance companies; but often we overlook the real factor that causes this prolongation. In my reports to the Industrial Commission of Ohio, I like to state the problem in this way: "If the claimant has been able to carry on the duties of his former occupation before the alleged injury, if the record of employment or the wage sheet does not show that he had to lay off frequently on account of backache or other disability that might be referable to arthritis, if the symptoms followed the injury in the manner alleged in his history, if the disability was such as is shown in the history and the statement of facts that usually accompany the patient [and if I find arthritis], then the present disability, in my mind, is caused by a preexisting symptomless and nondisabling condition made painful and disabling by the accident complained of."

DR. LEONARD W. ELY, San Francisco: The author's title is spinal arthritis, but in his paper he confines himself to one special form of arthritis, namely, the form that is known by various people under various terms, such as hypertrophic arthritis, osteararthritis, second type arthritis, and so on. It has a well defined pathologic appearance and a patient may have the disease in a severe form and be perfectly fit for work. The question has come up in California concerning the matter of compensation, and it was decided at first in favor of the employee. Here is a man of middle age, apparently in good health, who, in lifting a heavy weight, feels a sudden pain in the back. He goes to the roentgenologist the next day, and he finds spurs on his spine. What could be clearer? He had no trouble before. He sprained his back and the picture shows the spikes. Therefore the injury is responsible for the spikes. It has taken year after year and meeting after meeting to overturn this specious reasoning. The way we did it was as follows: When a case came up we would take our anatomic specimens to the hearing before the accident commission. We did not theorize, but we laid the specimens on the table and showed those men exactly the condition. We finally got the subject on a rational basis. It was a case of theory against concrete facts, and the facts won. These spurs and spikes are not the work of days or of weeks, but of years. They are the predisposing cause of the injury. The spine is already injured by disease and is easily sprained. The sprain is a result of the previous anatomic change. These cases of spinal arthritis were formerly diagnosed as neuritis. Practically all these cases of so-called neuritis show characteristic changes in the vertebrae. We called attention to the fact that these cases of so-called neuritis show no motor symptoms. Immediately other entities were invented, such as radiculitis, myositis, and fibrositis. I doubt whether there is any such pathologic entity. These spikes and spurs on the bodies of the vertebrae probably do not cause the symptom. One cannot draft laborers selectively; one cannot examine them, especially the union men, previous to their going to work. They will not permit it, and one cannot blame them, because if one did, one would cut down the working material immediately. Take the spine, for instance. Half the men in this section, judging from their age, have spines which, if dissected, would show the characteristic changes of the second type arthritis. It is that way with a heavy proportion of the population over 35. The problem, if looked at correctly, is comparatively simple: Spines injured by arthritis are more liable to injury. There is a certain occupational risk, and the occupation has to shoulder the expense of that risk, and in the ordinary cases the men will go on fairly well in their employment.

DR. W. W. HORST, Wilmington, Calif.: I believe that one cause of the continued disability in these spinal injuries is the latent foci of infection present at the site of the exostosis. Repeated roentgen examinations will show that after an injury, especially one severe enough to cause a fracture, these foci light up and cause trouble again. They become active in injuries not only about the spine but around any joint, and it is a matter of time until these foci of infection which flared up will become quiet again and the patient gets well. As to the remedy for this condition, I believe that the industry has to stand the bill. In my locality it is getting to be so bad that a man over 35 or 40 cannot get employment as a common laborer. That is the type that is more likely to have this trouble, but at the same time I do not believe that it is right to deny a man the right to make a livelihood if he has reached a certain age limit.

DR. ESLIE ASBURY, Cincinnati: We all know that this is not a disease and that it is due to the wear and tear of life. That has been proved in so many ways that I believe among most physicians there is no question about it any more. It is due to unusual strain and we know that people who work continuously in certain positions develop arthritis in these joints. One can take an old man with a fracture in one leg and let him start to bear most of his weight on the other leg, and he will develop more hypertrophic arthritis in the opposite leg. Therefore, I do not believe that we should regard it as a disease at all. It simply means that if we are going to employ older men and keep them in employment, we must accept old age pensions sooner or later for all of these old men.

DR. C. R. MCCLURE, Portland, Ore.: Here in Oregon, where we have large numbers employed in logging and sawmill work, as well as in longshoreing and other work, we are constantly running across this type of problem. As examining consultant for the Oregon State Industrial Accident Commission and director of the rehabilitation department, I have many hundreds of these men under my supervision in the course of a year. It has thus been my privilege and opportunity to visualize these conditions as they occur in industry and to watch their course and development over a long period of time. The economic factor has been an important feature in advising the commission what relation the injury has to the arthritis, and how long compensation for temporary total disability should be paid, and in classifying the permanent disability as partial or total, and if partial what percentage. In spite of our extensive experience along this line, we are unable as yet to arrive at any definite conclusions as to what procedure should be adopted in the disposition of these cases. Feeling that many of these patients have symptoms and complaints out of all proportion to the injury suffered and undoubtedly due to spinal arthritis, we have made the attempt, economically from the standpoint of the commission, to get rid of them on a rating somewhat related to the type of injury reported, but almost invariably they will come right back at us with an attorney; if we stand pat, they will take us into court, and nine times out of ten a lay jury will beat us. We have come practically to this point: When we have exhausted every phase of treatment, removing every known focus of infection, giving a long course of physical therapy, supplying mechanical aids, and even doing surgical operations in some instances, and if after a prolonged period of rest the man will not admit that he is able to return to his work, then the question of making final disposition of the claim must be met. In such instances we usually recommend a permanent partial disability rating, basing it on some tangible and recognizable disability, such as the loss of an arm or leg; I may add that the degree of subjective complaint often outweighs the objective evidence and receives much consideration in the making of the estimate; we may say that this man has a disability equal to 25 or 50 or 75 per cent lost function of an arm or a leg, but in such cases it is remarkable how many will come back claiming inability to work, and in a large proportion we simply end up in rating them as permanent total disabilities. I hope the time is not far distant when some uniform way of estimating these cases may be adopted and receive uniform and legal sanction.

DR. WALTER G. STERN, Cleveland: The law is very clear on the subject of insurance and compensation. Compensation does not pay a man for having been hurt. Insurance does not pay for any injury one may suffer. Compensation pays only for the disability and the loss of earning capacity. If one has a broken finger and is a minister or a judge, one has not lost one's earning capacity and therefore has no right to compensa-

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tion. If one is a piano player or a saxophone player and injures a finger, one has a right to compensation. No matter what we believe these men ought to be paid for their minor injuries, it is for their loss of earning power only that compensation is rightly paid.

DR. C. B. FRANCISCO, Kansas City, Mo.: I believe we are overtreating these men. I think that is one of the faults. We all know how easy it is for the laboring people, indeed for laymen generally, to get an idea that their condition may be worse than it really is. I like to think of these rheumatic conditions as constitutional rather than local. Even if they are of the infectious type, the patient is going to be in better general condition and therefore have better general resistance when he assumes a normal relation to life. I think the best thing for these men who have sprains or fractures of the spurs is to treat them as one would any other sprained joint for a period of three or four weeks and then get them back to work. I think that their mental reaction is better and that they are actually better. If one lays a man off for a long time and puts him through a long course of treatment, there is no power under the sun that can convince him that he is not permanently and seriously injured.

DR. LOUIS W. ALLARD, Billings, Mont.: I first began a study of this subject to determine if possible the relation of spinal arthritis to industrial disability. That such a relationship exists is generally acknowledged, but to what degree I did not know. After investigating the literature, corresponding with industrial boards and industrial surgeons, and consulting with those who might be in a position to throw some light on the subject, I found a general agreement that arthritis plays a considerable part in the production of industrial disabilities but no definite statistical evidence of this relationship. After this discussion I think we are still without definite information. We cannot tell the insurance companies and industrial boards that such and such a percentage of these injuries is due, in part at least, to a disturbance of old arthritic lesions, nor can they give us any information as to the number of these cases or what it is costing in compensation, for the reason that their reports from physicians concerning industrial injury are not made with any reference to spinal arthritis. How many men are disabled each year because of this disease or condition? Who knows? The speaker who stated that spinal arthritis is entirely a condition of age is not entirely correct. In the preparation of this paper I have included every form of arthritis under one group: the atrophic type, the hypertrophic form and that group which is undoubtedly the result of changes accompanying senescence, which is so often found complicating industrial injuries. From the standpoint of this paper it makes no difference as to the cause or pathology of the condition; the problem of determining the relationship to industrial disability remains the same. I really do not know how to conclude this subject in a definite way, except to suggest that we make an effort to get more positive statistical information on the subject. I am sure that the industrial boards will make statistical tabulations that include spinal arthritis if we request them to do so and, if the reporting physicians will make their diagnosis include observations on this point, we shall have positive information from which we can draw worth while conclusions. Before we drop the subject, I feel that we should make some positive effort to solve this problem, at least making some suggestions that will be tangible in the way of results.

Examinations in Industry.—Periodic health examinations reveal numerous defects which may be corrected with a consequent improvement in health and prolongation of life. Disabilities are found which make the usual occupation of the employee a menace to his health and by changing his work the danger is removed. Transfers of men from one kind of work to another should first have the approval of the physician. Men returning to work from absence due to illness or injury must be examined to determine their fitness to resume work. Those exposed to or engaged in handling industrial poisons must be examined frequently to detect early symptoms of intoxication. Food handlers require frequent examination for communicable diseases.—Adams, J. M.: Industrial Medicine, *New Orleans M. & S. J.*, September, 1929.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1929, p. 368).

Cutter Laboratory, Berkeley, Calif.

Diphtheria Toxoid-Cutter.—Prepared from diphtheria toxin whose L+ dose is 0.2 cc. or less by treatment with 0.3 to 0.4 per cent formaldehyde at a temperature of from 37 to 40 C. until its toxicity is so reduced that injection of five maximum human doses into guinea-pigs causes no local or general symptoms of diphtheria poisoning. The product is tested for antigenic potency by injection into at least ten guinea-pigs of one human dose each; if at the end of thirty days at least 80 per cent of the animals survive the injection of five minimum lethal doses of diphtheria toxin, the toxoid is considered satisfactory. Diphtheria toxoid-Cutter is standardized to contain in 3 cc. enough of the toxoid for one immunization treatment. It is marketed in packages of one immunization treatment of three 1 cc. vials; in packages of ten immunization treatments of thirty 1 cc. vials; also in packages of one 30 cc. ampule.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary.

ANTIUSTIO NOT ACCEPTABLE FOR N. N. R.

Antiustio is claimed by the manufacturer, the Frederick Laboratory, Toledo, Ohio, to be "The Greatest Burn Remedy in Existence." No declaration of the composition of "Antiustio" appears on the label. A circular contains the following indefinite and nonquantitative statement of composition:

"FORMULA

Solvent Solution of Plumbic

MATERIALS { Subnitrate of Bismuth, Zinc Sulphate and Iodide of Lead

combined with mineral waxes."

When requesting consideration of the preparation by the Council, the firm stated: "Antiustio is a combination of high grade Petrolatum and Refined Mineral Wax in proportion to secure a melting point of 120°. The active ingredient is 5% by weight and consists of Bismuth." In reply to a request for a more definite declaration, the statement was made that the "5% active ingredient is Sub-nitrate of Bismuth in powdered form. In this 5% there is a trace of Sulphate of Zinc . . . and also a trace of Iodide of Lead. . ." From these somewhat vague and indefinite statements it would appear that Antiustio is a petrolatum-paraffin mixture claimed to contain 5 per cent of bismuth subnitrate along with small but undeclared amounts of zinc sulphate and lead iodide, which is marketed with an indefinite statement of composition.

The following are among the claims made for "Antiustio" in the advertising: "The Greatest Burn Remedy in Existence. No skin grafting necessary when used according to directions." "Is therapeutically a disinfecting . . . agency. . ." Its use eliminates "the danger from shock and exhaustion or other disturbances following severe burns." ". . . it entirely eliminates the inhuman practice of skin grafting. . ." Antiustio "Restores skin to its normal condition. . ." ". . . we guarantee to heal any burn no matter of how long standing." "Antiustio . . . is also a skin food. . ." "Antiustio —Is a cleanser. . ." "We claim that Antiustio will produce quicker and better results at less cost than any other burn preparation yet produced." No evidence in support of these claims is offered, nor is there evidence that Antiustio is superior to other simple petrolatum dressings used as applications to burns or that the addition of zinc sulphate and lead iodide is effective or rational.

Antiustio is unacceptable for New and Nonofficial Remedies because it is an unscientific preparation marketed with an inadequate statement of composition, under a name which is not descriptive of its composition and with claims that are exaggerated and unwarranted.

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SATURDAY, NOVEMBER 16, 1929

THE TREATMENT OF EPILEPSY

The history of the changing methods in the treatment of epilepsy, particularly to prevent the characteristic seizures, would fill a large volume. Medicinal aids, as a recent writer [1] has pointed out, have included drugs that are of benefit in the general hygiene of the patient, such as cathartics and tonics; those that are intended to combat certain specific diseases whose amelioration is associated with improvement of the epileptic manifestations, as syphilis and malaria; and sedatives, whose purpose is to diminish the frequency and severity of the attacks or to arrest them. Surgery has proved disappointing except in a few instances. Hygiene and diet are generally considered as by far the most important factors in the general treatment.

Within the past few years, however, a number of highly specialized dietary procedures have gained unexpected prominence and apparently met with heretofore unmatched success. The first of these, primarily championed by Geyelin,[2] consists of somewhat prolonged starvation. The second method involves the use of strongly ketogenic diets, as advocated by Wilder [3] and Peterman [4] and reviewed some time ago in THE JOURNAL.[5] All of these favorable therapeutic regimens, regarding the use of which many satisfactory reports are now available, have in common the development of a severe acidosis, which seems to be decisive in the prevention of epileptic seizures.

To these considerations McQuarrie [6] has added the significant observation that there appears to be a tendency for the epileptic subject to retain water during the active phase of the disease in amounts that are harmful. Convulsions tend to occur when a positive water balance above a certain magnitude is established. When diuresis follows the seizure, it favors the prevention of further seizures temporarily. Whether this effect of the extra water is due solely to changes within the brain cannot be said as yet. One is at once reminded of the phenomena described by Rowntree [7] under the designation of "water intoxication." He has demonstrated that, when an intake of water is enforced in animals beyond the ability of the kidneys and other excretory channels to excrete the excess, profound symptoms ensue, including convulsions of cerebral origin and of extreme violence at times. The results can be accentuated when the water intake is attended with administration of such pituitary extracts as prevent the development of marked diuresis.

For the relief of the patient with epilepsy, McQuarrie has accordingly advocated marked restriction in the water intake, in view of the superficial relationship between water balance and the occurrence of seizures that has been determined under various conditions in a number of epileptic children at the University of Rochester, N. Y. He regards the etiologic factor in epilepsy as involving a sort of imbalance in the water metabolism—an upset between naturally occurring extrarenal processes of diuresis (dehydration) and antidiuresis (hydration). An analogous imbalance is known to occur in the case of diabetes insipidus but in an opposite direction from that which he postulates as being present in epilepsy. Experience in the clinic has demonstrated that procedures such as fasting, the use of ketogenic diets and stringent restriction of water with nonketogenic, borderline diets lead to partial dehydration of the tissues and prevention of seizures. Suddenly increasing the intake of water during the course of treatment by dehydration tends to cause recurrence of seizures, at least in the severe cases. Parenteral administration of solution of pituitary, or of the antidiuretic hormone of hypophysis, causes the development of a positive water balance and the occurrence of seizures in the epileptic subject. Urea in large doses causes loss of the retained water.

According to McQuarrie, the exact nature of the relationship of water balance to the occurrence of seizures is as yet quite obscure. It may be that the beneficial effect of partial dehydration depends merely on the mechanical relief from excessive pressure within the fluid channels of the brain. This would seem to be the most likely explanation in those patients having abnormal accumulations of cerebrospinal fluid in the subarachnoid spaces due to organic obstructions which interfere with normal absorption. For the other type of case, however, in which no such structural changes are found, explanation for the facts observed must be sought in a possible disturbance in the physiologic regulation of water balance within the brain. As McQuar-

1. Zabriskie, E. G., in Cecil's Textbook of Medicine, Philadelphia, W. B. Saunders Company, 1927.
2. Geyelin, H. B.: Fasting as a Method of Treating Epilepsy, M. Rec. **99**: 1037, 1921.
3. Wilder, R. M.: The Effects of Ketonuria on the Course of Epilepsy, Mayo Clinic Bull. **2**: 307, 1921.
4. Peterman, M. G.: Ketogenic Diet in the Treatment of Epilepsy, Am. J. Dis. Child. **28**: 28 (July) 1924.
5. The Treatment of Epilepsy, editorial, J. A. M. A. **88**: 1638 (May 21) 1927; Starvation as a Therapy, ibid. **92**: 1182 (April 6) 1929. Helmholz, H. F.: The Treatment of Epilepsy in Childhood, ibid. **88**: 2028 (June 25) 1927.
6. McQuarrie, Irvine: Epilepsy in Children: The Relationship of Water Balance to the Occurrence of Seizures, Am. J. Dis. Child. **38**: 451 (Sept.) 1929.
7. Rowntree, L. G.: The Water Balance of the Body, Physiol. Rev. **2**: 116 (Jan.) 1922.

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rie further points out, the four different regimens that are known to favor the prevention of seizures, namely, fasting, a ketogenic diet, rigid restriction of fluid intake and the administration of large doses of acid-forming salts, have in common the effect of dehydrating the tissues. It is true that these four procedures likewise tend to maintain the hydrogen ion concentration of the body fluids at a slightly higher level than would otherwise exist; but all the evidence so far obtained indicates that the relationship of any disturbance in acid-base equilibrium is of secondary importance. Within rather wide limits, McQuarrie concludes, procedures that tend to cause a shift in the acid-base balance toward the acid side favor loss of body water, whereas those causing a shift in the opposite direction probably favor retention of water within the tissues. This intimate relationship of the acid-base balance and the water balance makes it difficult to ascertain which is of primary importance, so far as the occurrence of seizures is concerned.

There are obvious advantages in employing a combination of restriction of water intake with a less rigorous ketogenic diet. The negative balance of certain elements, notably calcium and phosphorus, tends to become less; and the need for protein is not so accentuated as during a severe acidotic regimen. In any event, a disturbance in the water balance, perhaps affecting the central nervous system more specifically, appears to be closely identified with the etiology of epilepsy.

THE SALT FREE REGIMEN AND VASCULAR HYPERTENSION

A quarter of a century has elapsed since Ambard and his collaborators in France advanced the thesis that there is a direct relationship between the retention of sodium chloride and arterial tension. One outcome of this was a widespread interest in the physiologic effects of so-called salt free regimens. The opinions as to their value in medical treatment have been widely divergent. At first such dietary innovations were instituted in cases of hypertension without much consideration of the type of blood pressure changes that were under consideration. Furthermore, it must be said in all fairness that all too often the exclusion of sodium chloride from the diet was at most a crude approximation. Common salt enters so largely into present-day cookery that reduction of the salt intake in food involves special consideration from a culinary standpoint. The judgment of a dietitian and a food chemist as to what represents a "salt free" menu would probably differ somewhat. Rigorous exclusion of salt gives rise to foods that are unpalatable to many persons and leads to anorexia or failure of cooperation on the part of patients.

Within the past decade, however, the efficacy of a markedly reduced salt intake in the treatment of hypertensive persons has been proclaimed by a number of American clinicians. At the same time the clinical entity most commonly known as essential hypertension has been more clearly differentiated from other types of disease in which abnormally high blood pressure is a characteristic symptom. Thus, a more critical attitude has developed in relation to the numerous problems and prospects of therapy. The most prominent advocate of the potency of salt restriction asserted that this would produce a much greater reduction in pressure, a greater relief in symptoms and a speedier clearing up of retinal hemorrhages without more restrictions in diet or in exercise than are necessary with other methods. He advocated limiting the intake of salt to 0.5 Gm. a day instead of the usual 2 Gm.

In 1922, O'Hare and Walker [1] made the comment that this assertion, if true, would have been a welcome advance in the treatment of a troublesome and apparently increasing disease. They insisted, however, that any therapeutic measure claiming efficacy in a given disease or condition should fulfil at least this primary condition: it should be proved beyond a reasonable doubt that this measure, and this alone, produced the given result. As a corollary to the main proposition, it may be fairly demanded that any maneuver claiming to be more effective than another should show that the former measure is definitely and measurably superior to the latter. From this standpoint O'Hare and Walker approached the problem of salt intake in hypertension at the Medical Clinic of the Peter Bent Brigham Hospital, in Boston. The outcome of their experience with the extremely low salt intake advocated for the treatment of hypertension did not indicate any particular advantage over the older less rigid restriction. The former regimen had certainly not fulfilled in their patients the conditions mentioned in the introduction. This low salt diet is, furthermore, difficult to carry out at home, is monotonous and is expensive. O'Hare and Walker concluded that salt plays little part in vascular hypertension.

Other reports, notably by Mosenthal in New York, also not only failed to uphold the alleged benefits of the low salt regimen but even maintained that common salt may safely be permitted in considerable doses to patients with hypertension, provided there are no complications or sequelae present. Nevertheless one still hears reiterations of the old claims and hopes. Of course the relation of salt restrictions to the genesis or relief of edema are not under consideration in this instance, for that is another story. One of the latest studies, by Berger and Fineberg [2] of the Mount Sinai Hospital in Cleveland, deals anew with the effect of sodium chloride on the arterial pressure in hospitalized patients with so-called essential hypertension. After an initial period of stabilization, rest in bed, and diet, ranging from ten to fourteen days, salt was withdrawn

1. O'Hare, J. P., and Walker, W. G.: Observations on Salt in Vascular Hypertension, Arch. Int. Med. **32**: 283 (Aug.) 1923.
2. Berger, S. S., and Fineberg, M. H.: The Effect of Sodium Chloride on Hypertension, Arch. Int. Med. **44**: 531 (Oct.) 1929.

from the diet, the output dropping in most instances to below 1 Gm. daily and in some as low as 0.5 Gm. After they had been kept at this level for periods of from two to five weeks, sodium chloride was added to the diet in quantities of from 10 to 30 Gm. daily, supplemented in several instances by the intravenous administration of from 5 to 15 Gm. Berger and Fineberg failed to see any unquestioned modification of the blood pressure curve which could be definitely attributed to variations in the sodium chloride intake. The growing evidence ought at least to dampen the ardor of those who still are inclined to bank on the salt free regimen in hypertension and encourage them to seek assiduously for more promising and dependable therapeutic possibilities. Some of these have been cogently outlined by Moschcowitz.[3]

SILICOSIS

Increasing attention is being focused in various parts of the medical and industrial world on silicosis, or that form of pneumonoconiosis due to silica (SiO_2). A recent report by Irvine[4] states that the total disbursements under the miners' phthisis act in South Africa have amounted to approximately £1,000,000 per annum during the last three years in compensating workers who have developed the disease. A worker found to be afflicted with an early stage of the disease is given choice of limited employment or of accepting a lump sum as compensation and quitting the employment. A similar system has been suggested for Australia, where, apparently, silicosis is the principal occupational disease. Recently the British Home Office has extended compensation for silicosis to all industries in which it is known to occur.[5] The disease has been reported by physicians in many parts of the United States and Canada, in association with work on siliceous rock or dust such as in metal mining and sometimes coal mining, in the quarrying of granite and sandstone, in tunneling and excavating, as in New York,[6] in potteries, sand blasting, stone carving, grinding, polishing and other abrasive operations, and in the spray-coating of sanitary ware with vitreous enamel. The disease is now compensable in California, North Dakota, Wisconsin, Massachusetts and Connecticut, as well as among federal employees, and in Hawaii and the Philippines, Ontario and certain other Canadian provinces, but it is not included in the limited schedules of compensable occupational disease which exists in Minnesota, Illinois, Ohio, New York, New Jersey and Porto Rico, or in the compensation laws of other states, provinces and insular provinces.[7] Thus official recognition of the affliction is exceedingly irregular.

The exact nature of the action of silica on the lung tissues is not known. Evidently it produces an increasing fibrosis which, in the roentgenogram, widens the lower mediastinal shadows and radiates into the pulmonary areas accompanied by a distinctly characteristic discrete, punctate mottling which seems to follow the bronchial trunks and which in stereoroentgenograms gives the appearance of buds on the branches of a tree. While the shadows are largely due to the increase of fibrous tissue, the knife meets a gritty substance on cross-sectioning which, on analysis, is found to be chiefly siliceous material. Heffernan[8] considers that silica itself is harmless but that when it is inhaled with alkali dusts it passes into a colloidal "hydrosal" form which is poisonous and brings about the tissue reactions in the lungs. Inhaled substances, such as carbon, coal and clay, appear to coagulate any colloid silica present and thus act as protectives.

The incidence of silicosis seems to vary directly with the percentage of crystalline silica (SiO_2) in the substances inhaled. The average period of exposure before the affliction appears is reported as from eight to eleven years, although cases have been reported after a single year's exposure in some particularly dusty operations. Badham,[9] in Australia, believes that it is possible to differentiate between the action of various forms of siliceous dust and proposes to limit the term "silicosis" to the picture produced chiefly by silica, "silicatosis" to the fine feathery condition in the lung films consequent on the inhalation of silicates, and "siliconosis" to a mixed picture in which both silica and silicates and perhaps other substances have played a part.

Both tuberculosis and pneumonia have been the most frequent complications of silicosis, the former usually having an incidence among silicotic patients of from 20 to 30 per cent. In 1922, Hoffman[10] found that the mortality rate from pulmonary tuberculosis among granite cutters in Vermont was 1,064.5 per hundred thousand, as compared to 108.3 for the general adult population (20 years of age and over) for the state of Vermont. The late General Gorgas and his assistant Orenstein, who is now head of the medical organization of the Central Rand Mines, Ltd.,[11] were called to South Africa just prior to the World War to lend their assistance in combating the high rate of pneumonia among workers there.

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3. Moschcowitz, Eli: Cause of Hypertension of the Greater Circulation, J. A. M. A. **93**: 347 (Aug. 3) 1929.

4. Irvine, L.-G.: Diagnosis of Silicosis as an Occupational Disease, Rapports IV^e Reunion de la Commission internationale permanente pour l'etude des maladies professionnelles, Lyons, April 3-6, 1929, p. 43.

5. Reports of the Medical Board under the Refractory Industries (Silicosis) Scheme, H. M. Stationery Office, Adastral House, Kingsway, London, W. C. 2; Lancet **2**: 778 (Oct. 12) 1929.

6. Silicosis Committee, New York City: Silicosis Among Rock Drillers, Blasters and Excavators in New York City, Based on a Study of 208 Examinations, J. Indust. Hyg. **11**: 37 (Feb.) 1929.

7. Hayhurst, E. R.: Occupational Diseases: Definitions, Cause, Prevalence and Prevention, U. S. Bur. of Labor Statistics, Monthly Labor Rev. **29**: 29 (July) 1929.

8. Heffernan, P., and Green, A. T.: Method of Action of Silica Dust in the Lungs, J. Indust. Hyg. **10**: 272 (Oct.) 1928; Lancet **2**: 283 (Aug. 10) 1929.

9. Badham, Charles: Report, Director-General of Public Health, New South Wales, for the Year ended Dec. 31, 1927, Section I—E, Indust. Hyg., Serial Study 13, p. 102.

10. Hoffman, F. L.: The Problem of Dust Phthisis in the Granite-Stone Industry, Bull. 293, U. S. Bur. Labor Statistics, May, 1922.

11. Orenstein, A. J.: Organizations of Medical Supervision, Central Rand Mines, Ltd., Opera Collecta, Vth Internat. Med. Congr. on Indust. Accidents and Occupational Diseases, Budapest, 1929, p. 475.

Recently Hayhurst, Kindel, Neiswander and Barrett [12] completed an intensive study of the sandstone quarries industry in Amherst, Lorain County, Ohio, which has been the chief source of grindstones for more than fifty years and which, since these stones were replaced by other abrasive wheels, has increased its activities through the manufacture of curbing and building stone. The 919 workers were submitted to stereoscopic roentgen chest examinations, and 912 readable films were obtained and studied. These showed a total rate of increased pulmonary fibrosis of 55.1 per cent, including 28.5 with silicosis in various stages. The total tuberculosis, however, was but 1.9 per cent. Likewise, general disability among the workers was low. These observations check rather closely with the tuberculosis statistics for the quarry community and county. The period for developing silicosis, namely, 16.24 years, was more than twice that reported elsewhere. The rock was found to have an average content of from 92.15 to 97 per cent crystalline silica. In fact, among 260 men with silicosis only thirteen, or 5 per cent, had tuberculosis. The most plausible explanation of the anomaly, the investigators suggest, appears to lie in the fact that a petrographic study shows that the silica crystals are obtuse rather than acute-angled and that the matrix or bond holding them together (which chemical analysis shows is not more than from 3 to 8 per cent of the mass) is composed of carbonates, silicates, kaolin-forming substances, and the sulphides and oxide of iron, some of which have been reported as having a protective influence against both the silicotic and the tuberculous processes in the lungs.

Current Comment

PLACENTA PRAEVIA

At the recent meeting of the British Medical Association the master of Rotunda Hospital,[13] Dublin, read a paper on the subject of placenta praevia which brought forth an interesting discussion. Accurate diagnosis is of paramount importance. Fresh hemorrhage, accompanied by clots, in the last two months of pregnancy should always arouse suspicion of placenta praevia (Dr. Solomons insisted that hemorrhage occurring in the first twenty-eight weeks must be classified under "miscarriage"). The bleeding may be slight or severe, but it will be unaccompanied by pain. The presenting part will be high and not engaged; a uterine souffle will be heard in the hypogastrium. A final diagnosis can be made only by vaginal examination. If the os is open, the placenta itself will be felt; if closed, there will be a bogginess distinguishable in one or all of the fornices. As regards treatment, douching of the vagina was condemned and plugging found little favor. Version (external whenever possible) was generally regarded as good procedure, but version with extraction was not defended. Cesarean section found many advocates in the interest both of the mother and of the child. For the severe shock that accompanies hemorrhage in these cases, saline infusions were recommended. One speaker considered submammary infusions undesirable and preferred to infuse the flank. Others considered the submammary route safe if due precautions are taken. Dr. Solomons gives morphine as well as the saline infusions. Of those who took part in the discussion, only one, the chairman, was a general practitioner; he stated that in forty-five years he had encountered placenta praevia only nine times.

12. Hayhurst, E. R.; Kindel, A. J.; Neiswander, B. E., and Barrett, C. D.: Silicosis with Low Incidence of Tuberculosis, J. Indust. Hyg. **11**: 228 (Sept.) 1929.

13. Solomons, Bethel: Lancet **2**: 387 (Aug. 24) 1929; Brit. M. J. **2**: 248 (Aug. 10) 1929.

DIAGNOSIS OF ENDAMEBA HISTOLYTICA INFECTION

Until recently it has been generally supposed that cases of amebic dysentery were seen in the temperate zone only in those who had been recently in the tropics. Reports of such infection, however, apparently acquired locally, have lately appeared with increasing frequency. Brown,[1] at the Mayo Clinic, reviewed the histories of 533 patients, seen during five years, from whom endamebas were identified. Most of these patients lived in the Northwest and only in rare instances had been in regions where amebic dysentery is known to be endemic. Active dysentery constitutes only a portion of amebic infestation, and Craig [2] and others have done much toward the recognition of the carrier problem. Amebic dysentery has also been studied epidemiologically in Chicago and in New York.[3] In consequence of the interest that is being shown toward the diagnosis of latent and carrier types as well as of the active stages, the recent work of Craig is particularly valuable. The standard method of stool examination for active parasites requires great care and often frequent repetition to establish the facts. By means of a rather elaborate technic, Craig [4] has prepared the reagents for a specific complement fixation test which is analogous to the Wassermann reaction and includes a similar hemolytic system. The results of this test are recorded as in the Wassermann test—four plus, three plus, two plus, one plus, positive-negative or negative—but for practical purposes nothing under three plus in untreated cases is considered as positive. Craig tested 623 patients with various types of ailments in the Walter Reed General Hospital, and of this number sixty-seven, or 10.7 per cent, gave a positive (three or four plus) reaction. In all but six of these patients, examinations of the stools resulted in demonstration of *Endameba histolytica*. More than 60 per cent of those giving positive reactions presented symptoms of the infection, while the remainder seemed to fit into the "healthy carrier" class. This reaction is apparently specific for *Endameba histolytica* as opposed to other parasitic infections, since Craig found that 21.7 per cent

1. Brown, P. W.: The Nature, Incidence and Treatment of Endamebiasis, J. A. M. A. **86**: 457 (Feb. 13) 1926.

2. Craig, C. F.: The Symptomatology of Infection with Endameba Histolytica in Carriers, J. A. M. A. **88**: 19 (Jan. 1) 1927.

3. Williamson, C. S.; Kaplan, Bertha; and Geiger, J. C.: A Survey of Amebic Dysentery in Chicago, J. A. M. A. **92**: 528 (Feb. 16) 1929. Bishop, L. F., and Bishop, L. F., Jr.: A Study of Amebiasis in New York City, Am. J. Trop. Med. **9**: 297 (Sept.) 1929.

4. Craig, C. F.: The Technic and Results of a Complement Fixation Test for the Diagnosis of Infections with Endameba Histolytica, Am. J. Trop. Med. **9**: 277 (Sept.) 1929.

of 121 patients giving negative reactions presented some other species of ameba in the feces. On the other hand there was apparently some lack of specificity when compared with the Wassermann and Kahn reactions, since it was found that eleven of the sixty-seven patients giving a positive reaction with this test also gave positive Wassermann and Kahn tests. The error here involved is relatively slight and probably depends in part on the somewhat crude methods at present used in preparing the *Endameba histolytica* antigen and will probably be largely eliminated when the extracts can be prepared from entirely pure cultures of the ameba. At the present stage of these investigations the technical difficulties involved, particularly in the preparation of a satisfactory antigen, are not encouraging to the routine use of this test even in most well equipped hospitals. The results, however, are so striking in the hands of Craig that it seems likely that continued investigation will develop a method simple and accurate enough to supplant or, at least, supplement the arduous methods at present in vogue.

THE DIPHTHERIA PROBLEM

The Health Section of the League of Nations has published a general review of the diphtheria problem. The infant, during the first six months of life, has a natural immunity to diphtheria, which probably is hereditary. In one clinic the diphtheria bacillus was found in 12 per cent of new-born babies. In 60 per cent of these cases the mother was found to be infected at the same time. The natural immunity that exists among tropical peoples (in the Philippines American investigators found a negative Schick reaction in as many as 80 per cent of the group examined) may be due to the same causes that produce immunity in the United States and in Europe, where epidemics among people living in overpopulated areas lead to the production of a "natural" immunity. While diphtheria is as severe in warm as it is in cold countries, and in the East as in the West, the mortality rate varies slightly among different races. The morbidity of diphtheria diminished considerably in the years preceding the discovery of antitoxin. Since then it has remained almost stationary in most countries and in the last two years has shown a tendency to rise. In the Netherlands, in 1885, the deaths from diphtheria were 50.2 per hundred thousand inhabitants; in 1895 they fell to 20.7. In Italy they fell from 95.2 in 1887 to 50.1 in 1894, and in France in towns of more than 5,000 people the incidence fell from 58.2 in 1889 to 38.1 in 1894. Thirty-two countries reported a total of 321,470 cases in 1923, and in 1928 about 399,000 cases. A number of other countries noted in this review had a decrease in the number of cases during this period. In the United States, the decrease has been almost continuous since 1923; in the year 1927, an exception, a sharp rise occurred bringing the cases up to 106,192. The diphtheria morbidity rate in Finland has gradually fallen and it has gradually risen in Belgium, but the aggregate number of cases has increased in both of these countries, as well as in France, Austria, England, Poland and Czechoslovakia. In Argentina the incidence of diphtheria began to fall in 1889. In the year that antitoxin was discovered (1895-1896) there was only a slightly higher morbidity than at the present time. The incidence of diphtheria has not therefore fallen generally and has risen in certain countries; but, on the other hand, the mortality has considerably diminished. In Norway, the mortality rate was 79.8 per hundred thousand inhabitants in 1894; by 1895 it had fallen to 25.2 and by 1896 to 17. It fell in the Netherlands from 33.2 in 1894 to 19.6 in 1896, and in the same period fell in Germany, Denmark, Scotland, France and Italy. The proportion of cases with paralysis in the last three years has been as high as 15.5 per cent in some hospitals. The sharp rise in the number of cases in most countries from October to January is remarkably constant, and as regular in countries where the winter is almost as warm as the summer. Some reason must be found other than the cold weather to account for this autumnal increase. In the last twenty-five years, two new conceptions have been introduced in the epidemiology of diphtheria; namely, the carrier theory, and the theory of natural immunity. In some schools where diphtheria has occurred, the proportion of carriers has reached 7 per cent, and among people engaged in diphtheria work in hospitals, 37 per cent. The proportion of carriers to the total population in England has been estimated at 4.6 per cent. The review by the Health Section of the League of Nations concludes that the effect of antitoxin on the mortality rate has varied in different countries, in some giving satisfactory results and in others unsatisfactory results. Active immunization may be accomplished by means of toxin-antitoxin, anatoxin or antimicrobic vaccines. The conclusion in this review is that the value of active immunization against diphtheria is undoubted, and that while the control of diphtheria mortality has had a partial check in the last few years it has now taken a new form, and the time is perhaps not far distant when lasting progress will be assured.

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Association News

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association broadcasts daily at 10 o'clock Central Standard Time, with the exception of Friday, when the health message is delivered at 9:45, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of November 18-23 is as follows:

November 18. "Gum and the Graces," by Dr. R. G. Leland.
November 19. "The Greatest Obstacles to Health," by Mr. Cecil Bean.
November 20. "Should We Pamper the Invalid?" by Dr. R. G. Leland.
November 21. "Fraudulent Use of Testimonials," by Mr. T. B. McDavitt.
November 22. "Tales That Dead Men Tell," by Miss Mildred Whitcomb.
November 23. "Ancient Peoples and Disease," by Dr. James O. Nall.

Evening Health Hints from Hygeia, 8 o'Clock Central Standard Time

November 18. Windows Are Best Ventilators.
November 19. Be Sure to Take Your Morning Walk.
November 20. Why Health Education?
November 21. Danger Lurks in Eye Shades.
November 22. Indians Scorned White Man's Food.
November 23. Feminine Styles Are Healthful.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Lamar County has appointed Dr. John A. Jackson of Sulligent health officer to succeed Dr. Turner E. Cato, who resigned to take a position with the West Virginia State Board of Health.——The new health officer of Geneva County is Dr. Lucius S. Nichols, Abbeville.

Society News.—The Calhoun County Medical Society, Anniston, was addressed, October 17, by Drs. Isaac I. Lemann, professor of clinical medicine, Tulane University of Louisiana School of Medicine, New Orleans, on "The Mimicry of Other Conditions by Diabetic Coma," and John H. Musser, professor of medicine at Tulane, on "The Three Most Important Types of Heart Disease." Several members from the Etowah County Medical Society attended the meeting and the barbecue at the Axis Club following the addresses.

CALIFORNIA

Plague Infected Ground Squirrels.—Plague infection was reported proved, under date of October 11, according to the U. S. Public Health Service, in a lot of three ground squirrels and one wood rat from a ranch 16 miles east of Gilroy in Santa Clara County.

Bartel Had a Prominent Sign Out.—J. E. Bartel, M.D., Long Beach, pleaded guilty, October 7, to a charge of advertising in violation of the state medical practice act. He was sentenced to pay a fine of $500 or serve 100 days in jail, but the sentence was suspended for two years. Dr. Bartel had a lecture place on the Pike where he is said to have posed as a "director of the sick," and had quite a prominent sign out in front of his residence. He graduated from Starling Medical College in Ohio in 1891, and was licensed in Oregon in the following year. An investigator for the state board of medical examiners brought about the arrest.

Food Cases Prosecuted.—Ten violators of the food laws of California have been prosecuted in the last few weeks, most of them for the adulteration of chopped meat through the addition of a preservative. They were fined from $5 to $50. Twenty violators of the bakery law have been prosecuted in the last few months. In one case, the defendant was given a thirty day suspended jail sentence. The bureau of food and drugs of the state department of health is cooperating with the San Francisco Health Department in surveying the market eggs in that city. Since September 12, the bureau has inspected 1,336 food establishments. There is a cooperative spirit among the merchants to comply with the food laws.

Society News.—The University of Southern California will celebrate its fiftieth birthday in June, 1930.——The University of California announces plans to enlarge its clinics at Second and Parnassus avenues, San Francisco, by the construction of a modern clinic building, provided the state will appropriate the necessary funds. A site just below the old clinic, about half a mile from the geographic center of San Francisco, has been purchased. The building will be connected with the University Hospital and other clinics by means of tunnels.——The San Diego County Medical Society held its November 12 meeting at the U. S. Naval Hospital, Balboa Park, in honor of Rear Admiral Edward R. Stitt, recently surgeon general of the navy, and Capt. Dudley N. Carpenter. Dr. Carl W. Rand, Los Angeles, spoke on "Diagnosis of Brain Tumors."——A motion picture demonstration of benign prostatic hypertrophy and indirect inguinal hernia was presented before the Los Angeles Surgical Society, November 15.

COLORADO

Colorado Requires Annual Registration of Physicians.—All licentiates of the Colorado Board of Medical Examiners are now required to register with the board annually, before the first of March. Resident licentiates must pay a registration fee of $2 and nonresident licentiates a fee of $10. The board is to publish annually in March, and distribute to all of its registered licentiates, a list of all licentiates registered on March 1 of the then current year, showing names, professional addresses, and dates and numbers of licenses. Failure to pay the annual registration fee by March 1 automatically suspends the right to practice, the suspension to continue during the period of delinquency. This annual registration is required by a bill passed by the legislature during the current year. In the October issue of the *American Medical Association Bulletin*, page 195, it was erroneously stated that this bill had been defeated.

Society News.—Dr. Philip Work, Denver, addressed the Pueblo County Medical Society, October 1, on cerebrospinal meningitis. Mr. Harvey T. Sethman, executive secretary of the state medical society, spoke on plans for conducting that new office.——Dr. William A. Kickland, Fort Collins, president elect, Colorado State Medical Society, was guest of honor at the October meeting of the Larimer County Medical Society. Dr. Maurice H. Rees, dean and professor of physiology and pharmacology, University of Colorado School of Medicine, Denver, spoke on "Hospital Records."——Dr. Harry A. Smith, Whittier, Calif., addressed the Delta County Medical Society, October 4, on tonsils.——Dr. Samuel Fosdick Jones, Denver, was elected president at the organization meeting of the Rocky Mountain Orthopedic Club, September 14, the purpose of which is to cooperate in the management of orthopedic cases, particularly in charitable institutions, and to promote interest in orthopedics.

DISTRICT OF COLUMBIA

Death of Mrs. Gorgas.—Mrs. Marie Doughty Gorgas, widow of Major General William C. Gorgas, formerly surgeon general of the U. S. Army and internationally known for his work in connection with the Panama Canal, died suddenly, at her home in Washington, November 8.

Personal.—Dr. William Gerry Morgan, President-Elect of the American Medical Association, gave an address at the New York Academy of Medicine, November 6, on "The Part the Community Can Play in Improving Public Health Through Preventive Measures"; his speech was broadcast over a chain of twenty-five stations. Dr. Morgan was one of several speakers at a public meeting in the health examination campaign being conducted by the county medical societies.——Dr. Joseph S. Wall was presented with framed resolutions passed by the Medical Society of the District of Columbia at its meeting, November 6, for his help in obtaining for the District a medical practice act that would put the quietus on quackery.

GEORGIA

Society News.—Dr. Allen H. Bunce, Atlanta, a member of the Board of Trustees of the American Medical Association, addressed the Tenth District Medical Society at Milledgeville, October 24, on "The Significance of Headache," and Dr. Irvine Phinizy, on "Spider Bite"; a symposium on focal infection was presented by Drs. Wade R. Bedingfield, Frank Lansing Lee, Asbury Hull, Francis X. Mulherin and Lysander P. Holmes.——The Fulton County Medical Society was addressed, October 17, by Dr. E. Bates Block on "Relation of Syphilis to Epilepsy."——Dr. Henry R. Donaldson addressed the Fulton County Medical Society, Atlanta, November 7, on "Indicanuria, from a Surgical Viewpoint."

ILLINOIS

Society News.—The Southern Illinois Medical Association, which held its fifty-fifth annual meeting at Benton, November 7-8, was addressed by Drs. Frederick O. Fredrickson, Chicago, president of the Illinois State Medical Society, on "Control of Medical Practice"; Bennett Y. Alvis, St. Louis, on "Tuberculosis of the Eye"; Floyd Stewart, St. Louis, on "Pyelograms and Their Importance to the General Surgeon," and Marion L. Klinefelter, St. Louis, on "Early Diagnosis of Orthopedic Conditions." Dr. Lionel S. Luton, St. Louis, presented motion pictures illustrating the valves of the heart in action. Among other speakers were Dr. Robert F. Lischer, Mascoutah, who as vice president has been acting as president of the association on account of the poor health of Dr. Albert R. Carter of Murphysboro; Dr. James S. Templeton, Pinckneyville, councilor of the district, who spoke on obstetrics, and Dr. Andy Hall, state health commissioner, on "Maternal and Infant Mortality——The Aesculapian Society of the Wabash Valley held its eighty-third annual meeting at Paris, October 31; Dr. Charles S. Laughlin, Vineland, N. J., spoke on "Our Idiosyncrasies of Conduct, the Basis and Continuing Cause of Unethical Practice"; Dr. Walter N. Thompson, Sullivan, Ind., on "The Physicians' Duty to the Community," and Dr. Charles H. Voorheis, Hutsonville, Ill., on "The Kidney of Pregnancy."——The Adams County Medical Society met with the Peoria City Medical Society, November 11; Drs. Wilbur L. Bowen read a paper on surgery of the thyroid and Perry B. Goodwin on diverticula of the esophagus.——The Perry County Medical

Society, Pinckneyville, held a symposium on pneumonia, October 29, the speakers being Drs. Leslie D. Cassidy, Oliver Abel, Jr., Carliss M. Stroud, John W. Thompson, Jr., and Frank R. Finnigan, all of St. Louis.

Chicago

The Valmora Dinner.—Invitations have been issued for the sixth annual dinner of Valmora Sanatorium, Valmora, N. M., to be held in the ballroom of the Stevens Hotel, November 20, to celebrate the twenty-fifth anniversary of the founding of Valmora. Dr. William T. Brown, superintendent of the sanatorium, will be toastmaster. Entertainment will be provided by talent from the Southwest.

Psychopathic Laboratory Now Under Health Department.—The psychopathic laboratory, which for many years has been under the municipal court, has been placed under the direction of the Chicago Department of Health. The health commissioner expects to extend the services of the laboratory to the school child, whereas heretofore they have been confined to court cases. Dr. Meyer Solomon, who has been appointed director of the bureau of mental hygiene, will have general charge of the laboratory, and Dr. David B. Rotman, immediate charge.

Personal.—Dr. Italo F. Volini, professor and head of the department of medicine of Loyola University School of Medicine, is to be awarded the rank of chevalier of the Crown of Italy next month for "service to the Italian people in the United States and for fostering Italian ideals and culture."——Dr. Charles A. Elliott, professor of medicine, Northwestern University Medical School and recently Vice President of the American Medical Association, has been appointed a member of the medical council of the U. S. Veterans' Bureau to succeed the late Dr. Frank B. Granger of Boston.——Dr. Alton S. Pope has resigned as epidemiologist and chief of the bureau of communicable diseases of the Chicago Health Department to accept a position with the Massachusetts State Health Department.——Michael Davis, Ph.D., of the Julius Rosenwald Fund, addressed the fifteenth National Conference of Catholic Charities at New Orleans, November 10-14, on "Some Aspects of Group Medicine with Special Reference to the Pay Clinic."

Appointments and Resignations at the University.—The board of trustees of the University of Chicago has made the following changes in the faculty of the medical department: Theodore Friedemann, Ph.D., to be assistant professor of chemical bacteriology in the department of medicine for one year; Dr. Byron F. Francis to be instructor in medicine and resident physician at the Edward Sanatorium for one year; Dr. Knute A. Reuter to be instructor in the department of medicine for one year; Loh Seng Tsai, Ph.D., to be instructor in the department of pathology under the Sprague Memorial Institute for one year; Dr. Patrick A. Delaney to be research associate in the department of pathology for fifteen months from April 1, 1929. The appointment of Dr. William F. Moncreiff was changed, so that he will have the rank of associate clinical professor in the department of ophthalmology at Rush Medical College. Dr. Peter D. Ward's appointment was changed so that he is now assistant to the director of the university clinics. Dr. Clarence J. McMullen has resigned as assistant clinical professor of medicine at Rush Medical College.

KENTUCKY

County Societies Aid Students.—Each county medical society in Kentucky has been requested to raise $25 for the student loan fund which the house of delegates of the Kentucky State Medical Association authorized at the Richmond meeting to assist Kentucky students who desire to study medicine. Private donations will also be gladly accepted. All funds will be carefully accounted for. The chairman of the committee appointed to take charge of this matter is Dr. Granville S. Hanes, Louisville.

Health at Louisville.—Telegraphic reports to the U. S. Department of Commerce from sixty-three cities with a total population of about 29 million, for the week ending November 2, indicate that the highest mortality rate (27.9) was for Louisville, and that the rate for the group of cities as a whole was 12.4. The mortality rate for Louisville for the corresponding week last year was 13.8, and for the group of cities, 11.7. The annual rate for sixty-two cities was 13.1, as against a rate of 12.8 for the corresponding weeks of 1928. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large negro population may tend to increase the death rate.

State Medical Meeting and Election.—At the seventy-ninth annual meeting of the Kentucky State Medical Association, Louisville, October 21-24, Drs. Granville S. Hanes, Louisville, was made president, and William B. McClure, Lexington, president elect. Dr. McClure, who has been treasurer of the state medical association for twenty-six years, is a past president of the Fayette County Medical Society. The vice presidents elected are Drs. John L. Phythian, Newport; Leslie S. Hayes, Louisa, and William E. Gary, Hopkinsville; the treasurer is Dr. Marshall McDowell, Cynthiana. Dr. Emmet F. Horine, Louisville, was elected orator in medicine, and Dr. Owsley Grant, Louisville, orator in surgery. The next annual meeting will be at Bowling Green. Dr. Charles H. Mayo, Rochester, Minn., addressed public meetings at Louisville on "Focal Infections," and Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, on "The Prolongation of Life."

MICHIGAN

Hundreds of Physicians Agree to Help.—The department of health of Detroit and practicing physicians are cooperating in a campaign of immunization against diphtheria. More than 750 physicians have agreed to give toxin-antitoxin and the Schick test at certain hours free for those who cannot pay or for $1 an injection for others. The health department will supply the immunizing material and keep records of the children immunized. This is a cooperative effort between the Wayne County Medical Society and the Detroit Department of Health. Diphtheria increased during the week ending November 2 from sixty-three cases to seventy. A recent survey by the state health department showed that the diphtheria rate in Michigan was among the highest in the country.

Children's Fund Holds Conference.—Under the direction of the Michigan State Medical Society and the University of Michigan Medical School, the Couzen's Children's Fund of Michigan will present a conference on diseases of infancy and childhood at the University Hospital, Ann Arbor, November 26. Dr. Julius H. Hess, professor of pediatrics, University of Illinois College of Medicine, Chicago, will discuss the alimentary tract of infancy and childhood; Frances B. Floore will demonstrate the teaching of diet to children; Dr. Guy L. Kiefer will speak on the physician's part in the prevention of contagious diseases; Dr. David M. Cowie will discuss the physical examination of children; Dr. Udo J. Wile will speak on treatment of common skin conditions, and Dr. Moses Cooperstock on nephritis and allied conditions, while Dr. Cowie and the staff will demonstrate the Schick and Dick tests, sensitization tests, the blanching test and the coagulation time.

Society News.—The original building of the Detroit College of Medicine at Mullett and St. Antoine streets was closed, October 2, by the mayor as being unsafe from the standpoint of fire. The school will continue to use the new building which was completed three years ago and has since been used as a laboratory building with one floor given over to the Wayne County Medical Library.——The Highland Park Physicians Club will hold its fourth annual clinic at the Highland Park General Hospital, December 5. A number of the physicians on the program are from other states.——The Michigan State Medical Society held a postgraduate conference at Grand Rapids, November 13, which was addressed by Dr. Clifford G. Grulee, Chicago, on lobar pneumonia in infancy and vomiting in infancy, and by Dr. Claude F. Dixon, Rochester, Minn., on "Paralytic Ileus With and Without Intestinal Obstruction."——The Calhoun County Medical Society, Battle Creek, was addressed, November 5, by Dr. John T. Hodgen, Grand Rapids, on "The Colles and Other Fractures."

MINNESOTA

Personal.—The guests of honor at the annual banquet of the St. Louis County Medical Society, Duluth, October 10, were Drs. Daniel D. Murray and Alexander J. Braden, pioneer practitioners in Duluth and senior members of the society.——The last of the series of lectures on physiology at the Mayo Foundation given by European professors was by Karl Thomas, director of the Physiological Institute, Leipzig, October 8, on "Metabolism of Food and Tissue Protein."

Society News.—The Minnesota Academy of Medicine was addressed at the Town and Country Club, October 13, by Dr. Herman A. H. Bouman on "The Goiter Problem and Theodor Kocher."——Courses in nursing administration will be given at the College of Saint Teresa, Winona, beginning January 20 and continuing for six weeks. The courses will offer nursing school organization, survey of the nursing field, and nursing supervision in hospitals and schools of nursing. The college offered courses in nursing administration for the first time in 1929.

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Industrial Safety Program.—The St. Louis County Medical Society has arranged a program for the Industrial Safety School which will be held in Duluth, December 4. At the general session, William A. O'Brien, Minneapolis, will speak on personal health and efficiency. The various industries will be represented on the program as follows: railroad and mining—"Disabling Sickness Among Workers," Frank Hirschboeck; woodworking—"Tuberculosis in Industry," Daniel W. Wheeler; all trades—"Mental Hygiene and Efficiency," Laurence R. Gowan; machine and metal workers—"The More Common Bone and Joint Injuries," Joseph R. Kuth; dock and elevator—"The Neglected Common Cold," Edward E. Webber; truck drivers—"The Health Hazards of a Truck Driver," Claude L. Haney; electrical workers—"Physical Examination in Industry," Mario M. Fischer.

MISSOURI

Personal.—Dr. James W. Shankland, formerly hospital commissioner of St. Louis, is in Europe visiting medical centers.——Dr. Frank J. Tracy has been appointed chief of the clinic for venereal diseases of the St. Louis City Health Department, succeeding Dr. J. Sherman Pope, resigned.

Society News.—Dr. Francis M. Pottenger, Monrovia, Calif., addressed the St. Louis Medical Society, October 29, on "Relation of Symptoms of Disease to the Vegetative Nervous System." The society was addressed, November 12, by Drs. Ernst Fuchs, Vienna, Austria, and Daniel M. Velez, professor of ophthalmology, University of Mexico, who were in St. Louis, as special guests of the National Society for the Prevention of Blindness.——Dr. James R. Elliott addressed the Clay County Medical Society, October 16, on "Fractures of the Spine."——Dr. Alfred Goldman addressed the Trudeau Club, November 7, at the St. Louis Medical Society Building on Lindell Boulevard, on "Microscopic Study of Pleural Fluids."——The annual intercounty meeting held by the Boone County Medical Society with the Ninth Councilor District Society was addressed, October 1, at Columbia, by Dr. John H. Ogilvie, Kansas City, on hyperthyroidism; by Dr. Wenzel C. Gayler, St. Louis, on "New Developments in Obstetrics," and by Dr. Winchell M. Craig, Rochester, Minn., on "Diagnosis and Treatment of Head Injuries." Speeches were made by Drs. Gayler, president elect of the state medical society, Edward J. Goodwin, secretary and editor, and Don A. Barnhart, Huntsville, Warren L. Allee, Eldon, and Arthur R. McComas, Sturgeon, councilors of the tenth, eighteenth and ninth districts, respectively.——Dr. Joseph D. James, Springfield, addressed the Greene County Medical Society, September 13, on "The Surgery of Pregnancy."——The Laclede County Medical Society, Waynesville, was addressed, recently, by Drs. Clarence H. Benage, Pittsburg, Kan., on "Early Diagnosis of Gastric Carcinoma" and by Duff S. Allen, St. Louis, on "Acute Conditions of the Abdomen."——Dr. John D. Hayward, St. Louis, addressed the St. Francois-Iron County Medical Society, Bismarck, September 24, on "Application of Anatomy with Other Methods of Diagnosis" and Dr. Frank L. Morse, St. Louis, on bone injuries.

MONTANA

Personal.—Dr. Benjamin H. Frayser, who has been stationed at Fort Harrison for about eight years, was elected surgeon general of the American War Veterans, Inc., at the recent annual meeting in Lexington, Ky. This organization is said to include veterans of all wars.——Dr. Raymond C. Hall has resigned as surgeon for the Anaconda Copper Mining Company on the staff of St. Ann's Hospital, Anaconda.

NEBRASKA

Meeting of Eye and Ear Academy.—At the annual meeting of the Sioux Valley Eye and Ear Academy, Fontenelle Hotel, Omaha, November 19, after a clinic in the morning, the following papers will be presented: "Histopathology of the Fundus," Dr. William C. Finnoff, associate professor of ophthalmology, University of Colorado School of Medicine; "The Child with the Discharging Ear," Dr. Arthur M. Alden, assistant professor of clinical otolaryngology, Washington University School of Medicine; "Present Status of Malignancy About the Head and Neck," Dr. Francis L. Lederer, assistant professor of laryngology, rhinology and otology, University of Illinois College of Medicine, Chicago; "Histological Background of the Ocular Syndrome in Botulism," Dr. Charles M. Swab, Omaha; "Recent Advances in Knowledge of Visual Pathways," Dr. James F. McDonald, Creighton University School of Medicine, Omaha.

NEW YORK

"Dr." Claunch Is Refused a Hall.—The state department of health advised the custodian of a public building in Albany, recently, concerning its use for lectures on health and psychology by one "Dr." Stanford Claunch, who is advertised as a physician. The department found that Claunch was not listed in the American Medical Directory or in the New York Directory and, as far as it knew, was not licensed to practice medicine. The commissioner of health of Connecticut wrote that Claunch had been advertising his free lectures in the Hartford newspapers. The New York State Department of Health advised that he be refused the use of the hall in Albany. Claunch, who is said to be a naturopath, claims also to be an educator, psychologist and dietitian.

New York City

Second Harvey Lecture.—The second Harvey lecture will be delivered at the New York Academy of Medicine, Saturday evening, November 21, by Dr. Eli K. Marshall, Jr., professor of physiology, Johns Hopkins University, Baltimore, on "The Minute Output of the Heart in Health and Disease."

What Noises Disturb You?—The Noise Abatement Commission, the appointment of which was noted in THE JOURNAL, October 26, is endeavoring to determine by a questionnaire what noises disturb the citizens and at what hour they are most troublesome. When sufficient complaints have been secured they will be analyzed by the commission and the most disturbing noises tabulated. Citizens are requested to cooperate by sending in complaints promptly.

The Annual Biggs Lecture.—The New York County Medical Society and the New York Tuberculosis and Health Association will sponsor the annual Biggs Memorial Lecture to be given November 25 at the Academy of Medicine by Dr. John H. Stokes, professor of dermatology and syphilology, University of Pennsylvania School of Medicine, on "The Syphilology of Today and Tomorrow: A Speculative and Critical Appraisal." The public is invited.

Columbia Reorganizes Student Health Service.—The health officer of Columbia University, Dr. William H. McCastline, and Herbert E. Hawkes, LL.D., the dean, have changed the plan of conducting physical examinations of students entering the university by having the examination done by sixteen physicians, instead of having them under the direction of the department of physical education. It is proposed that the health of students will be followed up through their four years of college work; it is also proposed to build and endow a separate building for the university health service.

Hospital News.—Prof. A. Schlossmann, Dusseldorf, Germany, lectured at the Mount Sinai Hospital, November 12, on "Encephalitis in Children, with Especial Reference to Post-vaccinal Encephalitis."——Frederick Brown has given $100,000 to the Hospital for Joint Diseases to establish two fellowships in orthopedic research, the income of which will be awarded annually by a committee. The fellowships will be open to all physicians throughout the country, graduates of class A schools, who have had an internship in an approved hospital. The hospital invites candidates to submit their applications for these scholarships. Mr. Brown has been president of the Hospital for Joint Diseases for six years.——Mr. and Mrs. Morris Goldberg have given $250,000 to add a wing to the United Israel-Zion Hospital in memory of their daughter.

Society News.—The department of pediatrics of the Fifth Avenue Hospital of the City of New York is giving a series of lectures on the scientific aspects of pediatrics which was opened, November 6, by Dr. Arnold L. Gesell, professor of child hygiene, Yale University School of Medicine, New Haven, on "Clinical Studies of Early Mental Growth." A. W. Rowe of the Evans Memorial Hospital, Boston, spoke, November 13, on "Diagnosis of Endocrine Disorders in Prepuberty Years," and Dr. Frederick M. Allen of the Physiatric Institute, Morristown, N. J., November 20, on "Observations on Juvenile Diabetes." Dr. Gregory Shwartzman of the Mount Sinai Hospital will lecture, November 27, on "Streptococcus and Certain Diseases in Childhood." These lectures will continue weekly until June 4. They are correlated with research studies which are being conducted by Drs. Frederick H. Bartlett and I. Newton Kugelmass.——The Brooklyn Gynecological Society was addressed, November 1, by Dr. Jacob P. Greenhill, Chicago, on "Analysis of 874 Cervical Cesarean Sections Performed at the Chicago Lying-In Hospital."

Twenty New Health Centers Proposed.—The Committee on Neighborhood Health Development, appointed by the health commissioner, called on the mayor, October 30, to present the results of a survey. The committee recommended that

twenty new health centers for the treatment of the sick poor be built in the city at the rate of four a year. The mayor pledged himself, said the New York *Times*, to do everything in his power to support this program when the details are worked out and approved. Each health center, the committee said, should include a baby health station, lung clinic, dental clinic, and visiting nurse and maternity and nutrition service. It was recommended that centers be established first in the north Harlem district, then in the Columbus-Chelsea district on the lower east side, in Mott Haven, in the Williamsburg-Greenpoint district, in the Red Hook-Gowanus district, in the Brownsville-East New York district, in the Long Island-Astoria district and in Jamaica. The members of the committee were Bailey Burritt of the Association for the Improvement of the Condition of the Poor, chairman; Homer Folks of the State Charities Aid Association; William Hodson of the Welfare Council; Lawson Purdy of the Charity Organization Society; Thomas J. Riley of the Brooklyn Bureau of Charities; Rev. F. Keegan of the Catholic Charities, and Dr. Linsly R. Williams of the Academy of Medicine.

OHIO

Magnetic Healer Sentenced.—Ben Sorgen of Belleville, who is reported to have substituted charms and incantations for the treatment ordinarily used by the medical profession, was fined $200 and sent to the workhouse for sixty days recently by Judge Sawicki of that city for practicing medicine without a license.

Society News.—The November 15 scientific program before the Academy of Medicine of Cleveland was presented by the Toronto Academy of Medicine. This program was to have been presented last May, but was postponed on account of the Cleveland Clinic disaster. The speakers were Drs. Robert M. Janes, "Tuberculous Empyema"; Eric A. Linell, "The Reaction of Neuroglia to Brain Injury"; Reginald S. Pentecost, "The Treatment of Tuberculous Lesions of the Upper Respiratory Tract" (illustrated by lantern slides); Frederick F. Tisdall, "Value of Various Special Glasses for the Transmission of Ultraviolet Rays," and William E. Ogden, "Clinical Interpretation of Serial Serologic Reactions, Being Caulfeild's Inhibitive and the Tuberculocomplement Fixation as Specific for Tuberculosis" (illustrated by lantern slides of chests and graphs).

Report on Tonsil Clinics.—The Academy of Medicine of Cleveland's committee, appointed to cooperate with the county board of health in holding tonsil clinics, has submitted a report covering the summer. The members of the committee were Drs. Samuel C. Lind, John W. Conwell and James R. Ripton. The operators were furnished by the academy. Clinics were conducted at Euclid, Fairview, Parma, and Maple Heights, and in cooperation with the parent-teacher associations also. Preliminary clinics were held one or two weeks before the operative clinics to determine whether applicants were worthy of charity. The maximum charge for operations ($5 a child) was sometimes paid by the parent-teacher association of the village. At the preliminary clinics, the committee says, most parents were straightforward about their financial condition but there were enough doubtful cases to make the procedure of value. Some applicants stated, when informed, that they did not care for charity. Others thought the clinics were such as to give taxpayers the right to their benefits irrespective of income. An unusual example was a family apparently worthy of charity whose income totaled about $25 a week but which on further questioning disclosed that it owned land worth about $28,000 on which there was a mortgage of only $2,500. The interval between the preliminary clinics and the operative clinics made it possible to check the cases with the family physicians, who in most cases agreed with the investigating committee. A few physicians were not cooperative; some expressed a desire to perform the tonsillectomies themselves either for a small fee or without charge. Representatives of parent-teacher associations were helpful, but, in exceptional cases, they failed to recognize that this was to be a charity clinic. Final decisions as to who should be admitted were made by the chairman of the academy's committee, the county health commissioner, and the representative of the parent-teacher associations. The thanks of the committee were expressed to the operators, some of whom served several times. The average cost per child was $2.17. The clinics therefore made a profit of $2.83, on each, and a total profit of $1,015, which was returned to the community organizations interested in health work to be used for the partial support of eye clinics and baby clinics. The committee believes that this situation is entirely improper. While the operators worked at a disadvantage (the confusion resembled more, the committee says, a bargain sale than the quiet of a hospital), the clinics were excellently well conducted under the circumstances. The helpfulness of the hundreds of women from the communities was appreciated, but the committee believes that voluntary help in such quantities creates an atmosphere incompatible with the best practice of medicine. Instead of conducting tonsil clinics in school houses, it is recommended that the hospitals of the county be asked to set aside certain days in the summer for this work. The committee believes that much was gained by this cooperative effort. These villages now appreciate that the academy is a functioning body ready always to aid worthy purposes.

OREGON

Society News.—Dr. Charles U. Moore, Portland, addressed the Polk-Yamhill-Marion County Medical Society, recently, on "Common Complaints Associated with Food Sensitization," and Dr. Laban A. Steeves, Salem, on "Primary Inguinal Hernia with Strangulation."——The Portland City and County Medical Society held a symposium, October 2, on colitis; Dr. John H. Fitzgibbon, H. J. Sears, Ph.D., and Dr. Frank R. Menne spoke on diagnosis, parasitology and pathology, respectively. At the October 16 meeting, Dr. Martin S. Sichel discussed the "Management of Gonococcal Pelvic Infection"; Dr. Herbert H. Foskett gave a gross and microscopic tissue demonstration of "The Pathology of Salpingitis."——The Lane County Medical Society was addressed, recently, by Dr. Adalbert G. Bettman, Portland, on the development of plastic surgery.

PENNSYLVANIA

Druggist Sued for Improper Treatment of Patient.—William T. Conwell, Philadelphia, a druggist at Twenty-Ninth and Horton streets, and also, it is reported, a naturopath, lost a suit for damages. Serafino Panciello, the complainant, presented evidence to show that his leg was amputated as the result of improper treatment by Conwell. Panciello testified, it is reported, that when he went to the drug store to obtain salve for his leg, Conwell inquired whether he had diabetes, stating that, if so, he could cure him. Conwell is said to have treated the patient several times a week until his leg became "highly inflamed." Panciello was awarded $8,000 damages.

Society News.—The Allegheny County Medical Society, Pittsburgh, will devote the November 19 program to cancer. Drs. C. B. Maits speaks on vital statistics; Frederick M. Jacob on precancerous and cancerous lesions of the skin; Robert M. Entwisle on differential diagnosis of tumors of the breast; Paul B. Steele on secondary cancer of the bone, and David B. Ludwig on carcinoma of the ovary. Dr. Sidney A. Chalfant, chairman of the society's cancer commission, makes the introductory remarks.——The Pittsburgh Urological Association will be addressed, November 18, by Dr. B. A. Thomas, Philadelphia, on "Diagnosis and Management of the Movable Kidney."——The Lancaster City and County Medical Society was addressed, November 6, by Drs. Martin B. Tinker, Ithaca, N. Y., on medical and surgical aspects of treatment, and Arthur C. Christie, Washington, D. C., on roentgenographic treatment.——The Cambria County Medical Society, Johnstown, was addressed, October 10, by Dr. Roy R. Snowden, Pittsburgh, on diagnosis and treatment of hyperthyroidism.

Philadelphia

Society News.—Dr. Burrill B. Crohn, New York, will address the Philadelphia County Medical Society, November 27, on "The Abuse of Tobacco: Resultant Physiologic Disturbances"; John R. Murlin, Ph.D., Rochester, N. Y., on advances in physiology of the alimentary tract, and Dr. Gordon J. Saxon on "State of Education of the Public in Nutritional Matters."——Jefferson Hospital announced plans, October 26, for a new tuberculosis research laboratory; the building will join the present department of diseases of the chest.

Ex-Residents to Honor Dr. Hirst.—The forty-third annual dinner of the Association of Ex-Resident and Resident Physicians of the Philadelphia General Hospital will be held at the Penn Athletic Club, Eighteenth and Locust streets, December 3, as a testimonial to Dr. Barton Cooke Hirst, emeritus professor of obstetrics at the University of Pennsylvania. Dr. Hirst will be introduced by Dr. Richard C. Norris. Dr. Andrew A. Cairns, director of public health, and Dr. William G. Turnbull, superintendent of the Philadelphia General Hospital, will be the guests of the association. Ex-interns are requested to send their names and addresses to the secretary, Dr. George Wilson, 133 South Thirty-Sixth Street, Philadelphia, especially if they have not received in the past the annual announcement.

Personal.—Dr. James M. Anders has been appointed chairman of the Philadelphia unit of the Better Homes Association of America, of which Dr. Ray Lyman Wilbur, secretary of

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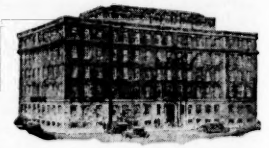
the interior, is said to be the head.——Dr. Eugene L. Opie, professor of pathology, University of Pennsylvania School of Medicine, delivered the Gross Lecture of the Philadelphia Pathological Society, November 14, on "Occurrence and Spread of Tuberculous Infection."——A tuberculosis conference arranged by the county medical society, city department of health and the Philadelphia Health Council was held, November 14; Drs. William G. Turnbull, superintendent of the general hospital, and Charles J. Hatfield presided. The speakers included Louis I. Dublin, Ph.D., of the Metropolitan Life Insurance Company, New York; Dr. Robert G. Torrey, tuberculosis division, state health department, and local experts in tuberculosis work.

Medical School Creates New Departments.—It has been announced that construction has started on a $1,500,000 building for the school of medicine of Temple University at Broad and Ontario streets. Simultaneously, the president of the university, Charles E. Beury, LL.D., announced the creation of six new departments in the school of medicine: medical research, neurosurgery, physical therapy, neurology, bronchoscopy and otology. The new building, which will replace the present inadequate quarters, will conform in design to that of the Samaritan Hospital across the street. The first two floors will be for the outpatient department of the hospital and the upper five and the basement for the medical school. The exterior will be of red brick and limestone. The third floor will contain the department of pharmacology and an auditorium which may be divided into two large lecture rooms. About one third of the floor will be left for future expansion. The departments of chemistry and physiology will occupy the fourth floor, each having a laboratory large enough for 100 students and lecture rooms to accommodate that number, as well as research laboratories. The departments of pathology and bacteriology will occupy the fifth floor with two large laboratories, a number of smaller ones, staff offices and special rooms and a pathologic museum. The sixth floor will be given entirely to the department of anatomy, and research laboratories and offices. The animal storage, and medical and surgical research departments will be on the seventh floor; in the basement will be lounging rooms, locker rooms and library book stacks. The building is expected to be ready for occupancy by September, 1930.



RHODE ISLAND

Office of State Health Commissioner Abolished.—The State Board of Health of Rhode Island was abolished by the legislature last winter, and a new health commission, politically appointed, has taken the place of the old board. One of its duties will be to license physicians to practice in Rhode Island. The executive secretary of the new commission is Lester A. Round, not a doctor of medicine. The legislature not only abolished the state board of health but eliminated also from office the state health commissioner, Dr. Byron U. Richards, who had held that position since 1917. The only other state that has placed laymen in charge of medical licensure appears to be Illinois. It will be interesting to observe what effect the change in Rhode Island will have on the high standards that have been maintained in that state for a long time.

TEXAS

Chiropractors Facing Charges.—K. E. Guy, chiropractor of Dallas, was sentenced to one day in jail and to pay a fine of $50, October 2, it is reported, on a charge of having treated a patient without having obtained a license. Several other chiropractors were said to be facing similar charges at that time.

Society News.—The Brown County Medical Society, Brownwood, was addressed, September 10, by the president of the Texas State Medical Association, Dr. Joseph E. Dildy, Brownwood, who outlined the plan for public health education carried on during his administration.——The Ellis County Medical Society, Ennis, was recently addressed by Drs. Archer T. Hampton, Ferris, on "Synergistic Anesthesia in Obstetrics," and Wayne T. Robinson, Dallas, on "Eclampsia."——The Tarrant County Medical Society held a symposium in September on fractures; the speakers were Drs. William Hodges McKnight, Alden Coffey, William O. Ott and George R. Enloe, all of Fort Worth; Dr. Porter P. Vinson, Rochester, Minn., addressed the society in September on bronchoscopy.——Dr. Robert E. House, Ferris, addressed the Navarro County Medical Society, Corsicana, in September on "Behavior in Delinquency of Youth."

VERMONT

State Medical Election.—At the one hundred and sixteenth annual meeting of the Vermont State Medical Society, Bellows Falls, October 10-11, Drs. George R. Anderson, Brattleboro, was made president; William M. Johnstone, Morrisville, vice president; William G. Ricker, St. Johnsbury, secretary; David Marvin, Essex Junction, treasurer, and Louis A. Russlow, Randolph, president of the house of delegates. Dr. Ricker was reelected delegate to the American Medical Association, and Dr. Clarence H. Beecher, Burlington, alternate. The society voted to attempt to arrange with the Massachusetts Medical Society "to own and operate the *New England Journal of Medicine* through the New England Medical Council, if agreeable to the Massachusetts Medical Society, when and if four other New England states join in the effort."

WEST VIRGINIA

Physicians May Use State Hygienic Laboratory.—The state hygienic laboratory is at the service of physicians throughout the state. Many of them already make frequent use of it; others perhaps because they are not familiar with the service offered rarely send specimens. Health officers are requested to bring this matter to the attention of practicing physicians at county society meetings in order to familiarize them with the service. Tests are made daily in the laboratory from specimens sent in from every part of West Virginia. In the first nine months of this year, 22,505 specimens were sent in from fifty-four of the fifty-five counties, an increase of 7,548 specimens over the same period of last year. More than 54 per cent of the examinations in 1928 were blood tests for the diagnosis of syphilis; 22.15 per cent of the examinations were to determine the safety of drinking water. There were more than 1,000 specimens examined for tuberculosis; 740 for diphtheria and 240 for typhoid; the heads of seventy-eight animals were examined for rabies. The laboratory was created by an act of the legislature to make diagnostic examinations that concern the public health. The new building constructed for the laboratory has been occupied.

Society News.—The Mason County Medical Society, organized a few months ago, was addressed, October 1, at Point Pleasant by the president-elect of the state medical society, Dr. Walter E. Vest, Huntington, on "Artificial Pneumothorax." The obstetric film, furnished by the state society, was shown. This six-reel film, made at Jefferson Medical College, Philadelphia, was also presented before the Academy of Medicine of Parkersburg, October 3, by Joe W. Savage, executive secretary of the state society.——The Central West Virginia Medical Society was addressed at Buckhannon, October 9, by Drs. Robert K. Buford, Charleston, on "Treatment of Pelvic Infection," and Fleming Howell, Buckhannon, on "Relation of Musical Sounds to Physical Diagnosis." Mr. Savage presented the obstetric film at this meeting and also at the October 8 meeting of the Fayette County Medical Society.——The Monongalia County Medical Society was addressed, October 8, at Morgantown by Dr. Kenneth M. Day, Pittsburgh, on "Chronic Suppuration of the Middle Ear."——The Kanawha County Medical Society was addressed, October 1, by Dr. Edgar B. Friedenwald, Baltimore, on infant feeding; by Dr. Everett E. Watson, Salem, Va., October 15, on "Nontuberculous Suppurative Pulmonary Lesions," and also by Dr. George F. Evans, Hopemont, on "Recent Advances in Treatment of Tuberculosis."——The Ohio County Medical Society was addressed, November 1, by Dr. John O. Rankin, Wheeling, on "What Europe Offers for Postgraduate Study."——Forty nurses had registered up to November 1 for the maternity institute to be held in Morgantown, November 25-26.——The infant mortality rate for West Virginia declined in 1928, while that for the whole country is said to have increased slightly. West Virginia, however, still has a higher mortality rate than the nation as a whole. There were 3,049 deaths in the state in children under 1 year of age during 1928, which was 17.4 per cent of the total number of deaths. The first year of life in West Virginia is as yet the most hazardous.——The Hancock County Medical Society, which has been inactive for three years, was reorganized, November 4, at Weirton. At this meeting, Drs. Thomas G. Simonton, Pittsburgh, and Harry M. Hall, Wheeling, president of the state medical society, gave addresses.——The Hospital Association of West Virginia will meet in Charleston, December 2. The principal speaker will be Dr. Bert W. Caldwell, Chicago, secretary, American Hospital Association.

WYOMING

Personal.—Drs. Lawrence C. Meredith and Oscar L. Veach, Sheridan, have been appointed medical examiners for the U. S. Department of Commerce aeronautics branch.——Dr. Russell H. Kanable, formerly of Des Moines, Iowa, has been appointed superintendent and medical director of the Wyoming State Tuberculosis Sanatorium, Basin.

GENERAL

British Health Officer to Visit United States.—Dr. George F. McCleary, senior medical officer in the British ministry of health, who will visit the United States, April 15-May 15, will be available for lectures on the history of Great Britain's fight for health, Britain's ways in preventive medicine, and modern views of health insurance in Europe. Inquiries may be addressed to the Institute of International Education, 2 West Forty-Fifth Street, New York.

Eradication of Bovine Tuberculosis.—In the last twelve months, 219 additional counties have been added to the list of modified tuberculosis free accredited areas kept by the U. S. Department of Agriculture, making a grand total of 787 such counties in the United States. The county to be thus designated must have had all of its herds of cattle tuberculin tested and must have not more than 0.5 per cent of tuberculous cattle. The work of tuberculosis eradication among cattle is progressing in about 500 other counties.

Marriages Declined Last Year.—The U. S. Department of Commerce announced, October 31, it is reported, that the number of marriages in the United States in 1928 had declined 1.5 per cent over the number reported in 1927. The marriages reported for the two years totaled 1,182,497 and 1,201,053, respectively. Divorces for these two years were 195,936 and 192,037, respectively, an increase in 1928 of 2 per cent over the number granted in 1927. In addition, there were 4,226 annulments in 1928 and 4,255 in 1927.

Tariff Increases Rejected by the Senate.—The Senate, in Committee of the Whole, November 8, rejected the increase in the duty on surgical instruments from 45 per cent ad valorem to 70 per cent ad valorem, and on dental instruments from 35 per cent ad valorem to 65 per cent ad valorem, proposed by the House of Representatives. If the action of the Committee of the Whole is adopted by the Senate, concurred in by the House of Representatives and approved by the President, the duties on such instruments will remain as they are under the tariff law now in force.

Society News.—Dr. Lyman W. Childs, Cleveland, was elected president of the American Association of School Physicians at the recent meeting in Minneapolis.——The National Committee for Mental Hygiene celebrated its twentieth anniversary in New York, November 14. Credit for starting the modern mental hygiene movement is given largely to Mr. Clifford W. Beers, who is now the secretary of the national committee.——At the recent annual meeting of the Association of American Medical Colleges in New York, Dr. William Darrach of Columbia University, New York, was made president; Dr. Maurice H. Rees, University of Colorado School of Medicine, Denver, vice president; Dr. Fred C. Zapffe, Chicago, secretary. The next annual meeting will be in Denver, October 14-16.

Accidents in Quarries.—In the year 1928, accidents in the quarrying industry in the United States cost the lives of 119 employees and injured 10,568. The greatest single cause of death was falls or slides of rock. In a report on this industry, the U. S. Bureau of Mines places the total number of active operators at 1,436 and the number of employees at 89,667. Quarrying limestone required the largest number of workers, 37,830; quarrying cement rock the second largest number, 22,315; granite, 11,314; marble, 6,777; traprock, 3,908; sandstone and bluestone, 3,849, and slate, 3,674 employees. The highest accident rate was in the traprock group. Pennsylvania had more employees in the quarrying industry than any other state; Ohio was second, Indiana third and California fourth. New York, fifth, and Vermont, sixth.

Bar Association Desires More Psychiatric Service.—At the recent meeting of the American Bar Association in Memphis, a resolution was adopted, it is reported, which read in part as follows:

> That there be available to every juvenile and criminal court a psychiatric service.
> That no criminal be sentenced for any felony in any case where the judge has any discretion as to the sentence until a psychiatric report is filed.
> That a psychiatric report be made on every prisoner before release.
> That each state establish a system of administrative transfer and parole and that no decision of a parole or transfer be made without a psychiatric report.

Southern Medical Association Meeting at Miami.—Among the speakers at the general sessions of the twenty-third annual meeting of the Southern Medical Association in Miami, November 19-22, will be the following:

> Dr. John A. Foote, Washington, D. C.: "Treatment of Erysipelas in Infancy and Childhood."
> Dr. James E. Paullin, Jr., Atlanta: "Syphilitic Myocarditis."
> Dr. Guy L. Hunner, Baltimore: "Conservative Gynecology."

Thursday evening in the Out-Door Theater at Bay Front Park, Surg. Gen. Hugh S. Cumming, U. S. Public Health Service, will give an address on "Some Public Health Problems of Special Interest to the South," and Dr. George J. Heuer, Cincinnati, will give the oration in surgery on "The General Training of a Surgeon." Wednesday, Dr. Harold L. Amoss, Durham, N. C., will give the oration in medicine on "Poliomyelitis."

Among the speakers before the American Society of Tropical Medicine, which meets simultaneously, will be Drs. Herbert C. Clark, Gorgas Memorial Laboratory, Panama, on "Malaria in Wild Monkeys in Panama"; Thomas B. Magath and Philip W. Brown, Rochester, Minn., "Study of the Symptom, Diarrhea," illustrated; E. Escomel Arequipa, Peru, "La Maladie de Carrion"; Paul G. Capps, San Francisco, "Tropical Ophthalmology"; William G. Gamble, Jr., Chicago, "Filarial Infections in Cosmopolitan Chicago," and George C. Shattuck and Kenneth Goodner, Ph.D., Boston, "Treponematosis in Yucatan."

Among those who will address the National Malaria Committee will be Lowell T. Coggeshall, New York, of the International Health Board, on "Report of Malaria Survey and Control Methods on Lake Murray, Columbia, S. C.," and J. A. LePrince and H. A. Johnson, Memphis, "Preliminary Report on Intermittent Dusting, Dyer County, Tennessee."

FOREIGN

Personal.—New members of the department of physiology of the American University of Beirut, Syria, are Dr. C. U. Ariens-Kappers, Amsterdam, who as visiting professor for this year will give courses in neural anatomy and histology, and H. G. O. Holck, Ph.D., who has a three year appointment as adjunct professor of pharmacology.

Nobel Prizes Awarded.—The Caroline Institute of Stockholm announced, October 31, it is reported, that the Nobel Prize in medicine for this year has been awarded to Dr. C. Eijkmann of the University of Utrecht, Holland, and to Frederick Gowland Hopkins, professor of biochemistry at the University of Cambridge, England, for their work on vitamins. The Nobel Prize in chemistry for 1929 was divided between Arthur Harden, professor of biochemistry, London University, and Prof. Hans Von Euler-Chelpin of Upsala University, Sweden, for research on the action of enzymes in the fermentation of sugars. The prize in physics was awarded to Duc de Broglie of Paris for research in the fields of electricity and the roentgen ray. Each award is said to be worth this year $46,299, and the checks will be sent to the winners, December 10, the anniversary of the death of Alfred Nobel, founder of the awards.

Greece to Reorganize Health Department.—Confronted with a serious problem of public health reform, the government of Greece requested the assistance of the Health Committee of the League in the reorganization of its health service in October, 1928. The league sent experts to Greece to survey typical areas for several months, and then made recommendations to the Greek government, relating principally to the establishment of a modern public health service, to training of personnel, to health instruction and to malaria control. Greece will establish a separate service to be called the "Permanent Hellenic Health Service" which will begin work in 1932 or 1933. In the first year, a new health organization will be introduced into six districts and later in the whole country. At Athens, a school of hygiene will be set up to train personnel and to direct work in the districts. Greece has appointed three foreign experts among those who will be in charge of the Athens center. The malarial dispensaries, already established in Macedonia, will be transferred to the new organization and converted into modern health centers. The health organization of the League of Nations has received similar requests for assistance from the president of Bolivia in South America.

Deaths in Other Countries

Sir T. Jenner Verrall, formerly chairman of the representative body and vice president of the British Medical Association, October 4, aged 76.——**Dr. Paul Lecene,** of the University of Paris, France, October 30, aged 51, of an infection contracted while treating a patient.——**Dr. George Arndt,** director of the Clinic for Skin and Venereal Diseases, University of Berlin, in August, aged 54, suddenly, of influenza and tuberculosis.

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Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 19, 1929.

The Medical Student of Today

In an address at the Royal Institute of Public Health, Dr. Graham Little (dermatologist and member of parliament for London University) said that the training for medicine had become longer than that for any other profession and was the most catholic and comprehensive. The improved status of physicians as contrasted with Paget's time reflected the great improvement in professional training and general education. The picture drawn by Dickens nearly 100 years ago was always something of a caricature, and at the present time would be so unreal as to fail even as a caricature. The ratio of physicians to population was much greater than it was fifty years ago and a further increase might be demanded if certain extension of the National Health Insurance Service took place. Dr. Little commented on the healthier lives lived by students of today compared to those of the time of Sir James Paget, who recorded a mortality of 4 per cent during pupilage. Probably at the present time the figure would be less than 1 per cent. The improvement might be explained by better housing conditions and by improvement in the habits of students, who took far more outdoor exercise and lived much healthier lives, notwithstanding that the training had become nearly twice as long and was much more severe.

Dental Hygiene Among Children

Addressing the students of the Royal Dental Hospital, Dr. William Hunter, the originator of the doctrine of oral sepsis, said that the care of the teeth was now given greater importance in relation to bodily health and that this new outlook gave an entirely new importance to the work of the dental surgeon. Instead of being concerned only with the preservation of the health of the teeth, he was concerned in an even higher degree with the health of the body. On the physician lay the first responsibility for recognizing the existence and possible importance of any mouth infection present in his cases, and it was for this reason that thirty years ago Dr. Hunter gave the condition a name of its own, oral sepsis. He feared and deprecated putting the whole responsibility for dealing with this infection on dentists, terming it dental sepsis and regarding it merely as a matter of dentistry. The infection played such havoc in many cases with the health of the individual that it now had a greater part in medicine than in surgery. The evils of mouth sepsis were so great that they could not be met by driving patients through the overburdened dental hospitals. The situation could be met only by dealing with it at the outset among children at the school period, when they could all be brought under observation and proper dental care and habits of mouth hygiene impressed on them. The chief measure required was the provision of dental nurses in the schools to carry out and inculcate simple measures of mouth cleanliness. The importance of this was being recognized more and more, especially in America.

Between 1904 and 1907 Dr. Hunter carried out an experiment at the London Fever Hospital on the effect of oral sepsis on the complications of scarlet fever. The sepsis was dealt with by simple measures without calling in the aid of any dental surgeon and the number of children showing secondary adenitis fell from 9.6 to 1.8 per cent; cervical cellulitis, from 5.2 to zero, and glandular suppuration, from 1.7 to zero. The removal of this sepsis thus prevented the worst complications. The later sequel of this work was even more interesting. When he came back to duty after the war he found that, in the last five years of his work, oral sepsis, instead of being present in a fourth or a half of his cases, was practically absent. It was clear that increased dental care had been at work among the school children of London. The character of that care was made clear by the striking report of the London County Council for 1927. Starting from a small beginning in a single school of 245 children in 1906, the council had created a great dental service which now treated 125,000 children yearly (out of the million children in its schools) and performed operations totaling half a million, of which 60,000 were performed under an anesthetic.

Women and Birth Control

The National Council of Women at its annual conference passed by a large majority a resolution in favor of birth control information being given at child welfare and maternity clinics. Mrs. Stocks of the National Union of Societies for Equal Citizenship said that they were not asking for propaganda in favor of birth control but merely that information should be made available for certain classes of people. The working mother was extraordinarily ignorant on these matters. Efforts were being made to limit families in extraordinarily inept and dangerous ways. Mrs. L. Mathews of the St. Joan's Social and Political Alliance moved the rejection of the resolution. She said that the doctrine of birth control was the doctrine of pure expediency. It was attempting to cure bad social conditions by tinkering with results instead of attacking causes. A large number of physicians opposed birth control on grounds of health, stating that the use of contraceptives frequently resulted in permanent sterility. The recognition by the state of birth control as legitimate for the married would result in an increase of immorality among the unmarried. Lady Eve said that birth control was here, rightly or wrongly, and poorer women should have the same chance of obtaining information as the daughters of the rich.

The Marriage of Mental Defectives

A strong recommendation that the marriage of mental defectives should be prohibited is contained in the report of the Board of Control. The 200,000 defectives in the community are considered wholly unfitted for parentage and it is added that "it would be a valuable safeguard if the marriage of defectives could be prohibited by law. It is astonishing that on the grounds of so-called morality well meaning persons countenance and even encourage the marriage of defectives who are not only obviously unfit to undertake the responsibility of parenthood but are incapable of assuming the responsibilities of the relationship into which they propose to enter. A prohibition of the marriage of defectives would prevent unions which are socially disastrous and would make it much easier to secure the protection of young defectives under supervision or guardianship or on license by bringing home to the public conscience the antisocial conduct of any overtures toward persons definitely stamped as incapable of valid marriage."

The Radium Trust and Commission

The appointment by the government of a body of national trustees to buy radium and control its custody, distribution and use for medical purposes was foreshadowed in a previous letter (THE JOURNAL, May 25, p. 1774). A body was appointed under the name of the radium trust and in connection with it a radium commission. The duties of the commission are as follows: 1. To make arrangements for the proper custody, equitable distribution and full use of the radium which is the property of the trust, with the object of promoting the treatment of the sick throughout Great Britain and the advancement of knowledge of the best methods of rendering such treatment and of securing economy in the use of radium. 2. To consider proposals submitted for the use of radium and to make arrangements for the loan of radium. At the first meeting of the

commission it was decided that pending distribution the supply of radium be stored at the national physical laboratory, Teddington, which will undertake the testing and measuring of all consignments received from the manufacturers. This is necessarily a slow process and it is not anticipated that more than 3 Gm. will be available, in containers ready for use, before the end of the year. In addition it is possible that a 4 Gm. "bomb" (for intensive radiation) may be secured on loan from the manufacturers for a limited period free of charge. An inquiry will be instituted into the needs, capabilities and equipment of institutions requiring the loan of radium. Preference will be given in the first instance to centers where radium therapy is combined with teaching and research. It was also agreed that loans of radium should as a rule be made only on terms which would recoup the commission for the expense incurred, aside from the purchase price, so that as little as possible of the national fund should go in administrative or overhead charges.

The National Radium Supply

The National Radium Commission has received on loan for three months, with option to purchase, a 4 Gm. bomb of radium. Applications for its use were invited from a selected list of hospitals with special experience in radium therapy. It was resolved to entrust the bomb to Westminster Hospital, subject to certain conditions. The commission has decided that the radium under its control will be distributed to a limited number of centers in Great Britain, to which patients will have to be brought for treatment. In their view a smaller subdivision in the attempt to satisfy the demands of the large number of hospitals, institutions and individual physicians will not be either feasible or desirable. But the commission hopes that the limited supply of radium available may be supplemented by the distribution, under proper safeguards, of radon prepared under its direction. Any national radium sent out must be fully insured at the cost of the hospital to which it is entrusted.

PARIS

(From Our Regular Correspondent)

Oct. 9, 1929.

The Antidiphtheria Vaccination Bureau

In the building occupied by the Academy of Medicine in Paris (rue Bonaparte), where are located its assembly hall, its committee rooms and its offices, there is an antismallpox vaccination service that dates from the foundation of the academy, more than a century ago. About twenty years ago, the Institut national de vaccine was created by ministerial decree. The equipment of this institute is very complete and includes, in addition to large halls for the vaccination of the public, which is admitted gratuitously on certain days at certain hours, several laboratories for testing the purity of vaccines; a workshop where the vaccine is entubed, and even quarters for two heifers that produce the vaccine. This establishment renders very important service. When there is a recrudescence of smallpox and the posters put out by the public health services recommend to the public to be vaccinated, one may see long lines of people, with their children, lining the sidewalks of la rue Bonaparte, waiting their turn. The institute furnishes also tubes of vaccine to hospitals and to physicians, and every day large lots are forwarded to Algeria and to the most distant colonies, in the last mentioned case usually in the form of dried vaccine.

The recrudescence of diphtheria, last year, induced the minister of health to organize more vigorous prophylactic measures, and to recommend the use of Ramon's anatoxin, which is recognized today as superior to the old antidiphtheritic serum of the Institut Pasteur, even in its new purified form. Although the anatoxin causes no untoward incidents, the necessity of applying two or three punctures, several days apart, in order to make the immunization surely effective, prevents the method from being widely used, since many persons declare that they are satisfied with one puncture. Thus the Academy of Medicine has decided to add an antidiphtheria vaccination service with anatoxin to its Institut de vaccine antivariolique, in the hope that the prestige of the academy in the mind of the public may serve to awaken a better conviction as to the merits of the method. The new service is functioning under excellent conditions under the direction of Dr. Camus, himself a member of the academy. During the past year, 2,400 inoculations have been performed. To accelerate operations, Dr. Camus has invented an ingenious little device to take the place of the Pravaz syringe. The contents of the tubes of anatoxin are removed automatically and transferred to a tube simply by pulling a slender wire; a button permits the regulation of the quantity to be injected, as the need may require. All that need be done is to change the needle for each person. An assistant sterilizes the needles after they are used, in order that they may be used again. The needle itself is joined to a collapsible tube, in order that it may not break off in the tissues in case of unforeseen movements of the patient. This device enables the operator to save considerable time when performing series of vaccinations. In addition, in order to encourage physicians to make a wider use of antidiphtheria vaccination among their clientele, the minister of health has assigned certain funds to the academy to be used in establishing prizes to be awarded each year to the most zealous vaccinators.

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The Bad Hygienic Conditions Associated with Pilgrimages to Mecca

Pilgrimages to Mecca, owing to the danger of spreading epidemic diseases (especially cholera) on the return of the pilgrims to their homes, have always caused grave concern to various European nations, and the health section of the League of Nations and likewise the international bureau of public health pay constantly very close attention to the matter. On the return of the pilgrims, sanitary frontiers and quarantine camps are established as soon as contagious cases are reported by the observation centers created along the road to Mecca, the most important inspection being at Jedda, a chief seaport on the Red Sea. France is especially interested in the question, owing to its large Mohammedan population in Algeria and Tunisia, and likewise in Egypt. Dr. Dinguizli, a Tunisian who took his medical course in France and who is a brother of the Tunisian minister, has devoted himself for several years past to the improvement of hygiene among the Mussulman population of his country. He has published numerous articles, which caused him to be chosen corresponding member of the Academy of Medicine. His authority is very high among his compatriots. He was appointed to take charge of a mission to Mecca, where the fact that he is a Mussulman permitted him to make a complete inquiry such as a European would not have been allowed to make. At a recent meeting of the Academy of Medicine he presented his communication in the presence of Ben Ghabrit, head of the Morocco commission; M. Manceron, French resident general at Tunis, and M. de St. Quentin, director of north African affairs in the ministry of foreign affairs. M. Dinguizli confirmed previous reports of the deplorable hygienic conditions surrounding the pilgrimages to Mecca. The pilgrims are crowded into small boats, in which they do their cooking and perform their ablutions. Each one receives an allowance, for the voyage, of 5 liters of water, which must suffice for drinking, for bathing and for washing of his clothes. The pilgrims bring their provisions on board, and these spoil rapidly owing to the excessive heat. Under these conditions, with the added effects of constant promiscuity, contagious diseases break out and spread rapidly. On the return journey, dysentery and cholera often develop, having been contracted at Mecca, where the only water to be had is obtained from cisterns, which are often contaminated, owing to the absence of a sweeping service and a drainage and sewerage system. The land journey, by caravan,

although likewise dangerous for the pilgrims, is less so from the standpoint of the contamination of neighboring countries, since, if the patients die on the way, their bodies are left behind for burial. Railway transportation would be more to be feared, because the journey would be shorter than the period of incubation. That is why the railway stops at Medina and is not permitted to extend its line to Mecca. M. Dinguizli suggests, above all, an improved organization of the boat transport service; boats specially chartered for the service would help. Water ought to be furnished in great abundance; also ice for the preservation of the food carried. All food should be prepared according to ritual by the Mussulmans, and should be served only in the ship's dining halls, all cooking in the cabins being prohibited. The academy decided to draw up regulations in accordance with these suggestions and to submit them to the public authorities.

The New Sanatorium Opposite Mont Blanc

On the occasion of the assembling at Passy of 150 French and foreign physicians, who made up the group that participated in the twenty-second medical study tour, Professor Carnot placed the cornerstone of the Village-Sanatorium de Plaine-Joux, which is being erected opposite Mont Blanc, at a height of 1,400 meters, by the Société des villages climatériques de haute altitude. Dr. Bruno, who was the assistant director of the Rockefeller Mission, explained that this sanatorium, which is intended for persons of moderate means, will be an outstanding institution in Europe from the standpoint of its architectural conception and its ultramodern equipment. Professor Carnot paid homage, in his address, to the persevering efforts of Dr. A. Bruno, who had not grown weary in contributing to the improvement of the country's means of defense against tuberculosis.

Supposed Dangers for the More Remote Entourage, from Roentgen Rays

There has been renewed discussion in the press, of late, after the question had lost interest during the past few years, as to the possible dangers that may be associated with the use of roentgen rays in the office of a roentgenologist, as regards persons living in the same house or contiguous houses. The experiments of M. Contremoulins, head of the municipal radiologic service at the Hôpital Necker, are said to have proved that photographic plates may be affected by rays coming from apparatus functioning behind a door or even behind a brick wall. Nothing more was needed to alarm the population and to create trouble for roentgenologists who have an x-ray laboratory in the city. House owners are becoming hesitant about renting an apartment to a roentgenologist, which is a grave matter just at this time when the lodging situation is still critical. Persons living in immediate proximity to radiologic laboratories, on the least suggestion of malaise from some undetermined cause, are inclined to hold the unfortunate radiologist responsible and to demand indemnities from him. Dr. Maingot, head of the electroradiologic service at the Hôpital Necker, took on himself the task of straightening the matter out, in an article communicated to the press. The experiments of Contremoulins were accurately performed, but the conditions were such as are never found in actual practice. The passage of rays through a wall, while it cannot be denied, concerns such weak doses that many radiologists have never observed their effects on new plates stored in cabinets in their laboratories. These doses are incapable of having any effects on the living tissues, which do not react unless a certain degree of power is reached, which is never attained under the existing conditions. Furthermore, Contremoulins, in performing his experiments, directed a powerful cone of rays perpendicularly against the wall for a prolonged period. Nowadays, a radiologist uses only an apparatus in which the tube is covered with an impermeable metal sheath, which allows the passage of only the useful cone of rays, which is directed exactly to the region of the body of the patient which is to be explored, and only for the exact time required. The fear awakened by Contremoulins has thus no basis in fact, and it is difficult to understand his reasons for launching such propaganda. Contremoulins is not a physician. He is a former laboratory assistant, who possesses a high degree of technical skill. Through political connections he has been able to secure the post of head of the municipal laboratory at the Hôpital Necker.

RIO DE JANEIRO

(From Our Regular Correspondent)

Oct. 1, 1929.

Identification of Nematode Larvae in Serohemorrhagic Pleural Exudate

Dr. Heitor P. Fróes of Bahia, while examining recently a serohemorrhagic pleural exudate from a patient in the hospital clinic, found a nematode larva which (under the microscope) was seen to move rapidly among the erythrocytes and lymphocytes. In a fresh sample of the exudate, which was centrifugated in a different tube, he found other larvae completely deprived of their sheaths. These larvae were active at first, then they moved less intensely, and finally died. On this occasion, Dr. Thomas Girdwood, an intern in the clinic, and Waldemar Faria, an assistant in the laboratory, observed the larvae. They believe that the possibility of contamination can be definitely disregarded. Two days later the patient died. At autopsy, 1,700 cc. of fluid was found in the right pleura. This exudate was centrifugated, and again live larvae, similar in size and form to the previous ones, were found. The investigator found also live larvae in blood from the lungs and in the pericardial cavity. There was a pericardial effusion, which was not suspected during life. He had the opportunity to show the larvae found in these fluids to Prof. Garcez Fróes and to Dr. F. Praguer Frés. He did not find any adult worms in the intestinal tract, although he examined it carefully from the duodenum to the rectum. He did, however, find an enormous number of embryos in the feces. Careful study convinced these workers that the larvae were of the genus *Rhabditis* and of the species *Strongyloides stercoralis*. Larvae of *Anguillula* have not been obtained from similar exudates before.

Physiologic Studies on the Patellar Reflex

Dr. Tranquilino Rosa da Cruz has studied the threshold of the patellar reflex in 680 persons (adults and children) with an apparatus known as the "patellometer." The apparatus was designed by Prof. Jayme Regallo Pereirae, a Brazilian physician, and exhibited before the Society of Physiology of London in 1925. Dr. Rosa da Cruz also studied the constancy of the threshold and the several factors which may modify it, such as powerful excitation, prolonged exercise, and change of temperature (ambient temperature and temperature localized to definite areas of the leg and foot). He has reached the following conclusions: 1. The threshold of the patellar reflex in men from 17 to 25 years of age is between 3 and 7 patellergs. These limits include 60 per cent of the men who were examined. The average of all those within these limits is 5 patellergs. 2. The threshold of the patellar reflex in women from 14 to 20 years of age is between 2 and 5 patellergs. The average threshold, which corresponds to 83 per cent of the women who were examined, is 3 patellergs. The limits of variation in the thresholds of women are less than those in men. 3. The normal threshold of children from 8 to 12 years of age is between 1 and 3 patellergs. These limits include 80 per cent of the children who were examined. The average threshold is 2 patellergs. The fact that the threshold of the patellar reflex in children is lower than in adults seems natural, because in both women and children (more so in the latter), the inhibitory apparatus is less developed than in men. 4. Prolonged physical exercise causes fatigue which increases the threshold of the

patellar reflex, while rapid exercise does not have any influence on the reflex. 5. The patellar reflex, though variable as any other in the same individual under normal conditions, varies within certain limits. 6. The threshold of a patellar reflex caused by powerful excitation is lower than that caused by weak excitation. 7. Sudden lowering of the surrounding temperature caused a diminution in the patellar reflex, while a sudden rise in temperature even up to 37 C. has no influence on the reflex. 8. The threshold of the patellar reflex remains lower than it does under normal conditions if the foot is submerged in iced water. 9. The patellar reflex was always present in the 680 persons who were examined, but the threshold was not always the same.

Observations on Aragão's Vaccine Against Yellow Fever

For the application of Aragão's vaccine against yellow fever Dr. Decio Parreiras chose Nilopolis, a locality of Rio de Janeiro, in which a large number of cases of yellow fever developed during the last epidemic of the disease. He also chose the localities of S. Gonzalo and Iguassu. He could not treat a certain number of the persons who were threatened by the disease with the preventive vaccine alone. Other steps, such as vigilance in the infected zones and isolation of patients, were necessary. Thus he could not reach precise conclusions as to the value of the vaccine. In the meantime, however, in Nilopolis, he observed the following occurrence: In a house in which twelve Polish people lived, three cases of yellow fever developed in less than sixty days; preventive vaccine was administered to all the tenants of the house but two, who refused to be vaccinated and who were attacked with yellow fever exactly thirty days later. The author concludes that Aragão's vaccine causes practically no undesirable reaction. Only two persons out of 182 who were vaccinated were attacked with the disease. This occurred in from forty-five to 180 days after vaccination. The disease was severe in both patients and one died.

Etiology of Hodgkin's Disease

Drs. Alcides Ayrosa, Samuel Pessoa and Clovis Correa state in papers which they published recently on the etiology of Hodgkin's disease that it is a morbid entity, of unknown etiology, with well characterized clinical, anatomic and pathologic pictures. Dr. Alcides Ayrosa in 1922 obtained from a case of the disease a germ which presented morphologic characteristics identical with the *Corynebacterium hodgkini* of Bunting and Yates. The authors have recently studied two cases from which they obtained material by biopsy which they used for cultures and for inoculations. They draw the following conclusions in their papers: (*a*) In cases of Hodgkin's disease, confirmed by histologic studies, a germ of the corynebacterium type was obtained, whose colonies presented a damp, pink coloration in the mediums of Petroff and of Bezançon. (b) After several transfers the culture gave origin to mycelial forms; in old cultures involution was observed, the short and bacillary forms being predominant, (*c*) In cases of lymphosarcomatosis and chronic lymphatic leukemia, the same technic was followed and the same culture mediums were used but corynebacteria were not obtained. (*d*) The corynebacteria did not thrive in the common laboratory mediums. (*e*) The complement reaction using the antigen prepared with corynebacteria was slightly positive in a case of Hodgkin's disease and negative in other adenopathies. (*f*) Inoculation of the germ into animals did not result in the histopathologic picture of Hodgkin's disease, although infarcts, slight fibrosis and eosinophilia were observed on examination of some of the ganglions. (*g*) The germ showed a marked predilection for the lymphatic system, and was recovered from the infarcted ganglions of two guinea-pigs and a calf which had been inoculated with it. (*h*) Tuberculous lesions were not found in any inoculated animal.

NETHERLANDS

(From Our Regular Correspondent)

Oct. 5, 1929.

Amaas, or Alastrim, in the Netherlands

The Bulletin international d'hygiène publique contained recently a series of official communications from various governmental organizations of the Netherlands on the subject of the epidemic of amaas, or alastrim, that prevails at present in this country. This epidemic has been much discussed in the medical press. The facts to date are as follows:

July 29, after the discovery of several cases of alastrim, or amaas, in Rotterdam, an inquiry was undertaken by the chief health authorities of the country, which brought out the following data:

May 24, 1929, a sailor returned from a voyage to the East Indies who—at least, according to the information secured—had been ill with malaria and chickenpox. The wife of this sailor was taken ill, June 3, complaining of headache and fever. June 4, spots appeared on the arms and legs, and a few on the face. June 17, the young daughter of the sailor, aged 5 and unvaccinated, became ill, displaying epistaxis and sore throat. An eruption with pustules appeared, June 19. The other children of this family had never had chickenpox and had been vaccinated; they did not come down with the disease. A cook from some boat visited the sailor's family, June 7 and 9, and, June 20, was taken ill with pains in the head, sore throat and fever. The fever did not persist after June 25, but the cutaneous disorder resembling chickenpox continued, the manifestations being chiefly on the face and back, and to a less extent on the chest, the abdomen and the extremities. There was little evidence of the disease on the hands—only a few vesicles on the palms. An unvaccinated child of the cook was admitted to a hospital, July 12, presenting a cutaneous disorder, together with pneumonia. He died, July 13. A second child of the cook was admitted to the same hospital, July 15, with fever and a cutaneous disorder. A woman nurse who had attended the first child of the cook to come down was taken ill, July 20; a second nurse, July 21; two nurses and an intern, July 22; three nurses, July 23, and three more nurses, July 27. All these persons had been in contact with the two children of the cook.

The disease began with fever and with pains in the head, associated in some cases with vomiting. After a day or two, a papulovesicular eruption appeared with a lowering of the temperature, often suddenly. Some patients presented only vesicles, even though the first symptoms were violent. The spread of the vesicles is usually centrifugal but less accentuated than in ordinary smallpox. The face more particularly is affected; then come the back and, to a less extent, the extremities; on the hands and the feet there are only a few scattering vesicles. After the eruption has fully developed and the temperature has fallen, the general condition improves at once, although some patients still complain of weakness and dizziness.

A number of aged persons and several young children, who were under treatment for another disease, in the same hospital, contracted the disease during the same period as the nurses. In the ward in which they were being cared for there were several nurses who had been in contact with the two children of the cook. Up to July 27, no case had been discovered in the city of Rotterdam, so that the hope appeared justified that the disease would remain confined to the hospital, but on that day two cases were reported, the first symptoms having been manifested, July 21.

The director of the municipal medical service, acting in harmony with the public health officer, addressed a circular letter to the physicians, announcing that a number of cases of a disease characterized by fever and a maculopapular erythema had appeared and requesting the physicians to report to him every similar case observed by them. As the first result of

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this circular letter, eight cases were reported, July 28, to the municipal medical service; twelve cases, July 29, and two cases, July 30, which made a total of twenty-four cases for the city. These patients had been taken ill between July 20 and July 28—the same period as those who were in the hospital. Two cases developed in unvaccinated children of tender age and proved fatal. The other cases were not grave at all. The type of the disease in the city was the same as in the hospital, so that it is evident that all the cases were of the same disease. All the patients, both in the city and at the hospital, were examined, July 29, and it was the unanimous opinion that the disease was that commonly called alastrim, or amaas. The physicians of Rotterdam were informed, and it was pointed out to them, at the same time, that smallpox vaccination applied to contacts and to persons in the neighborhood of the patients constitutes the best method of prophylaxis.

A number of further cases were reported at Rotterdam, either at the hospital among the nursing personnel or among the patients under treatment for other causes, or in the city. Up to August 10, the number of cases discovered in Rotterdam had reached eighty-three, thirty-two of which were reported from the hospital (twenty-one nurses and eleven patients of the hospital) and fifty-one cases that developed in the city. During the week ending August 10, one death was reported, that of an aged man who was already ill but in whom the infection may be regarded as a concomitant cause that hastened death. Finally, during the week ending August 17, thirty-one cases were reported in the city, while seventeen new cases developed at the hospital among the personnel and ten cases among the patients under treatment, or a total of fifty-eight cases for the week. That makes, for Rotterdam, a total of 141 cases since the appearance of the disease (May 24) up to August 17. Among the patients being treated for another cause was a child aged 6 months, who was vaccinated July 31 and in whom the first symptoms of infection appeared August 6. That child died, which brings the total number of deaths up to four.

Outside of Rotterdam, up to and including August 17, fifteen cases were reported from ten different communes.

The health authorities adopted all useful measures to prevent the propagation of the disease. By royal decree, the disease termed "alastrim," declaration of which had previously been optional, was placed in the same category as other transmissible diseases notification of which is compulsory.

The Bargehr Test

Some time ago, Dr. Bargehr demonstrated that: (1) persons who have never been in contact with Hansen's bacillus have no antibodies with which to combat that micro-organism; (2) persons who have long been closely associated with lepers (physicians, personnel of a leprosarium) contract, practically always, slight infections, as a consequence of which most of them develop specific antibodies, which confer on them an immunity to leprosy; (3) lepers who are in a progressive stage of the disease do not form these antibodies in sufficient quantity to overcome the disease, and (4) lepers may recover spontaneously, which can be shown by the Pirquet test with leprolin.

Professor de Langen, of the University of Batavia, has verified the experiments of Bargehr and has published his results in the *Geneeskundige Tijdschrift van Nederlandsche-Indië*. His results agree closely with those of Dr. Bargehr. On the supposition that the condition is probably a specific leprosy reaction, Professor de Langen opens up the following perspectives: (1) the symptom observed presents a diagnostic value; it will enable the examiner to recognize cases earlier, and old and quiescent cases, which, from the epidemiologic point of view, are probably no longer dangerous, can be distinguished with greater certitude from the cases still active; (2) the positive allergic reactions observed in lepers of long standing strengthen the view that leprosy may heal spontaneously; a positive reaction in persons who have been closely associated with lepers without contracting the disease justifies the assumption that these persons have the means of protecting themselves against an invasion by the Hansen bacillus; namely, by the production of antibodies in sufficient quantity and of sufficient potency to effect an abortive evolution of the disease, and (3) one could verify whether the positive reaction elicited by the repeated application of leprolin marks the capacity of the organism to protect itself against the invasion of the micro-organism of leprosy.

BUDAPEST

(From Our Regular Correspondent)

Oct. 22, 1929.

The Congress of the German Medical and Natural Sciences History Society

The German Medical and Natural Sciences History Society held its annual congress in Budapest on the occasion of the unveiling of Semmelweiss' statue. The inaugural address was delivered by Joseph Vass, minister of public welfare, in the spacious hall of the Industrial Art Museum. The important event, which appealed chiefly to the Hungarian nation and medical profession, took place on the second day of the congress, before the gigantic statue of Semmelweiss in Elisabeth Park, where the members of the congress convened to pay tribute to the memory of Semmelweiss. About 200 German physicians and professors were present. Among the local guests were Ernst Träger, ministerial councilor, as the representative of the Hungarian premier; Imre Dréhr, state secretary for public welfare; Andreas Csillery, late minister of public instruction; Baron Alexander Kétly, dean of the medical faculty; Eugen Berczell, mayor of Budapest; Robert Sárközy, ministerial secretary, and the deputation of the First Aid Society, the delegates of the Society of Military Surgeons, and others. The German physicians accompanied Professor Sudhoff of the University of Leipzig and the president of the Historical Society. His speech included the following statements:

"We have gathered here to pay tribute to one of the greatest Hungarian physicians, Philipp Ignatz Semmelweiss. Our respect is modest in proportion to the greatness of his work. He is great because of his perception of the causal factors of puerperal fever. There is no other relation which can be compared to that connecting the mother with her child. In the first months of life it is based on the exigencies of life. That this relation shall not be interrupted was what Semmelweiss endeavored to achieve. Scarcely more than eighty years have passed since he made his epoch-making discovery regarding the cause of puerperal fever. Millions of mothers and babies have derived benefit from his discovery. That and the recognition of the therapeutic importance of antiseptics and asepsis was Semmelweiss' work. It involved him in disputes and subjected him to scientific criticism. But he was right, and his work will live forever. We are happy to be able to place this laurel wreath upon his statue and to bow our heads in reverence to his genius."

Dr. Stephan Toth, professor of gynecology at the University of Budapest, then thanked the members of the Deutsche Gesellschaft für Geschichte der Medizin und Naturwissenschaften for the cordial tribute to Semmelweiss on behalf of the professorial board of the Hungarian universities. He said:

"The members of our board in Semmelweiss' time were the first to recognize the truth of his contentions. They accepted him among them as a professor, and appreciated him as a leader. Balassa, Markusowsky, Bauer, Bókay and the other members of the board, and even the whole medical profession, followed the doctrines of Semmelweiss at that time, when leaders in other countries ridiculed him. It is to the honor of this board that it appreciated Semmelweiss' theory. His teaching was a crystallized truth, which has stood unshaken in the storms of science. He did not live to see his truth conquer, but his name is now

known throughout the world and many rejoice with us in memory of his teachings. There is no more beautiful symbol of the vital force of Hungarian culture than this statue of Semmelweiss. The woman glancing at him so gratefully is the symbol not only of maternal love but also of Hungarian patriotism."

The mayor of Budapest placed a wreath on the statue on behalf of the city. Wreaths were also placed on the statue on behalf of the National Association of Hungarian Women, the ministry of health, the National Medical Association, the university and the Interhospital Association. Professor Sudhoff read a telegram from the president of the International Medical Association in Paris, which was in tribute to the memory of Semmelweiss. The German physicians afterward visited the grave of Semmelweiss in the Kerepes churchyard.

The American Hungarian Medical Association

A physician from New York, here on a visit to his parents and friends, relates that in the United States (particularly in New York) the number of Hungarian physicians has increased remarkably during the last eight years to the extent that they were able to found the American Hungarian Medical Association in 1926 with seventy-three members. The number has now grown to 293, of whom 250 reside in New York. The association serves scientific, economic and social purposes. Eight meetings are held annually, at which leading professors are invited to lecture in English. Members are thus helped with their English medical terminology. Fifteen minutes is allowed for each lecture or exhibition of cases, with fifteen minutes for discussion. The last meeting was held in the lecture hall of the New York Academy of Medicine. Twice a year social meetings are held in the locality of the Gipsy Village Club, and once a year a ball is held. The profits accruing from the ball are devoted to the administrative expenses of the association. Each meeting costs $80; the membership fee is only $4 a year. The officers of the association are Dr. John Gerster, president, and Dr. Ignac Neumann, vice president. Dr. Max Goldzieher is president of the committee entrusted with the arranging of scientific meetings, and Dr. Arnold Galambos is president of the committee on new members.

BERLIN

(From Our Regular Correspondent)

Oct. 15, 1929.

The Bavarian Medical Congress

At the Bavarian Aerztetag, or medical congress, which was held in Regensburg, September 6, the paper of Dr. Scholl of Munich constituted a supplement to the transactions of the German Aerztetag, at which the proposed modifications in the general system of health insurance were discussed. Dr. Scholl's paper is to be taken as a defense and as a reply to the attacks on the medical profession launched at the thirty-third Congress of German *Krankenkassen,* held in Nuremberg, and to the criteria proposed and approved for the reorganization of the federal health insurance system. The speaker did not confine himself to a defense but endeavored, on the basis of his experience covering a long period of years, to make some positive proposals in the interest of the cause, and to develop a program of economy, for it was, he said, unquestionably established that the social burdens of the *reich* had become unbearable for those chiefly concerned and that the financial condition of the *reich,* if nothing else, demanded a reduction in the cost of federal health insurance. But it was a wrong attitude to wish to confine the economies to the medical fees of physicians. It was his view that the needed retrenchment in the administration of health insurance should be applied in the main to the cash benefits and not to the cost of health care. The performances in kind (free medicines and the like) might be developed without increased cost.

Unfortunately, social insurance had of late been brought into the maelstrom of outstanding political problems. Such an important matter, however, should not be decided on a political basis but entirely on its own merits. With regard to the organization of the *krankenkassen,* the physicians took the attitude that in connection with health insurance the principle of trade and occupation must be considered. It was unwise, and would be a serious mistake, to create one single type of *krankenkasse.* The speaker attacked with especial emphasis the proposed extension of federal health insurance, and opposed particularly the admission of the small industrialists and the small farmers — also the proposed increasing of the income below which all persons must be insured to 6,000 marks, or $1,500. Such a request constituted a fundamental change in the conception of social insurance hitherto held, and compliance with that demand would mark a step toward popular insurance, in which persons with independent businesses of their own would be included. Popular insurance in the field of health would lead inevitably to socialization and state medicine. Physicians are opposed to any such development not only in their own interest but also in the interest of health insurance itself and in the interest of the people.

The speaker criticized with especial severity the criteria adopted in Nuremberg—the new form of service to be given by panel physicians. Physicians are willing to aid, to the limit of their strength, the health insurance service, but there was a limit that must not be exceeded—namely, the free exercise of the medical profession and a worthy and dignified position of the physician within the social insurance system. The speaker charged that the proposals of the president of the league of *krankenkassen,* with reference to the service of the panel physicians, constitute an undignified tutelage over physicians, and amount to a militarization of panel service. Some method of restricting among the insured their claims for cash benefits and for medicines and special forms of treatment should be introduced. It would be a wise innovation if, with reference to the drawing of cash benefits, a period of at least three days of waiting should be established. Such a measure would, it had been figured, reduce the expenditures for sick benefits by about 15 per cent. No wage-earners or salaried persons needed cash sick benefits so long as they had a legal claim to wages or salary, since cash benefits are supposed to serve as aid only in case of loss of regular income. If patients receive cash benefits as well as salary or wages, it serves as a great temptation to "play the sick game." It is important also to graduate the cash benefits for the patient and for the home according to the family status, in which an account must be taken of the differential social conditions of the insured and likewise of the number of members in the family. But, above all, the whole basis for the allowance of cash benefits as practiced by the panel physicians should be subjected to a thorough revision. The fact is, there is per se no connection between medical attendance and the allowance of cash benefits. In the granting of cash benefits it is a question of the application of an economic measure and the deciding of a legal problem. The physician should be relieved of all duties that are not strictly medical. He should continue, as in the past, to certify to the patient's inability to work, but the question as to whether or not a patient is entitled to cash benefits should be decided not by the attending physician but by the confidential medical representatives of the *krankenkassen.* It should be made possible for the *krankenkassen* to effect such a change in the laws. In connection with the gratuitous supplying of medicines and special treatments to the insured, some sort of check should be introduced as a protection against the too eager desire of the insured for medicines, which might take the form of a requirement that the insured shall pay from 20 to 25 per cent of the cost of medicines and special treatments.

If the economy program recommended by the speaker could be carried out, and if, above all, a federal chamber of physi-

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cians, with self-administration, were legalized, the organized free choice of physician could be carried out without laying any burdens on the *krankenkassen*. The fight being waged by the physicians was not directed against social insurance as such but only against exaggerated manifestations of the system and against the unworthy and unsuitable rôles that the physician is often required to assume, owing to the incongruences of the system. The German people, from which the physicians have sprung, demands of its leaders not the exemplification of the slogan "I must be rewarded" but rather that every individual shall place the welfare of the nation above his own personal welfare and shall take as his motto of life the simple words "I am the servant of all."

After the address, which was received with great applause, the following resolution was unanimously adopted:

In harmony with the medical profession of Germany, the eleventh Bavarian Aerztetag, held in Regensburg, hereby declares, with reference to the proposed reorganization of the federal health insurance system, that the medical profession now, as in the past, is ready to cooperate actively in carrying out legislation pertaining to social insurance. Cooperation will be most successfully accomplished if the pleas of the physicians, as set forth at the various medical congresses, that they no longer be classified with the industrialists but that a federal chamber of physicians be created, be granted. Such a chamber of physicians, being a legally constituted body, with the right of self-administration, would be in a position to negotiate with the insurance carriers on an equal basis and to organize and carry out the provisions of the whole medical service, so far as it is affected by social insurance. In that manner, the medical profession would share the responsibility for the successful working out of social insurance. The medical profession, however, is unanimously opposed to all endeavors that contemplate increasing the limit of income below which social insurance shall be compulsory, and opposes likewise the bringing of new classes of society within the operation of the federal health insurance system. It regards such endeavors as steps toward the socialization of medicine and as a fundamental departure from the original conception of social insurance. Such exaggerated manifestations of social insurance not only would impose a most terrible shock on the very foundations of the medical profession but would also increase unnecessarily the already heavy burdens of German industry and weaken in great measure the very necessary principle of self-help and self-reliance.

The Bavarian Aerztetag opposes also most decidedly the criteria adopted in Nuremberg at the thirty-third congress of the league of *krankenkassen*, concerning the proposed reorganization of the service of panel physicians, which would constitute an unworthy and unbearable supervision of the panel physicians by the confidential medical representatives *(vertrauensärzte)* of the *krankenkassen*, and would bring about the destruction of inner professional freedom and the overthrow of the joy in one's profession. Furthermore, such reorganization would result in the abolition of the system of free choice of physician, which is of such paramount value for both the insured and the physicians, and would lead to a completely unjustified restriction of the earning power of the panel physician—which would constitute an interference with the personal rights of the physician. In view of the desperate financial situation of the *reich*, the medical profession is willing to negotiate with the authorities having jurisdiction in regard to an economy program, which would contemplate an active combating of resources wasted through unnecessary granting of cash benefits, extravagant use of expensive medicines and various special modes of treatment. The medical profession of Bavaria lifts a warning voice, and demands that the medical profession of Germany be heard now, before any changes in legislation are made.

ITALY

(From Our Regular Correspondent)

Sept. 30, 1929.

Meeting of the Society of Experimental Biology

The annual meeting of the Società di biologia sperimentale was held recently in Florence on the occasion of the Congress of the Society for the Advancement of Science. Professor Beccari of the University of Florence presided. He was assisted by Prof. Filippo Bottazzi, general secretary of the society, who is also an "academician of Italy" and a member of the department of physiology in the University of Naples.

Professor Beccari discussed the subject of the experimental inversion of sex in vertebrates. The speaker stated that there have been spontaneous cases of inversion of sex, a most typical example having been in hens, in which the ovaries were destroyed by tumors or by tuberculosis, whereupon male organs developed, so that they became genuine male birds, capable of producing progeny. Various methods of experimental research have been employed. Attempts have been made, by various procedures, to influence the sex of the embryo during the course of development, but the results secured are not concordant. More lucid phenomena have been obtained in adult animals by means of two fundamental types of experiment: the graft or simple castration. By means of cross grafting applied to castrated mammals, Steinach (and later many other experimenters) secured manifest signs of masculinization in females and of feminization in males. There arose thus the theory of the equipotentiality of the germinal cell or soma (Zawadowsky) and of the embryonic asexual soma (Lipschutz). Goodale and other authors have shown that ovariectomy causes a pullet to assume first the somatic characters of the capon and later the characters of the male. Harms and la Ponse have, on the contrary, demonstrated that castration of males of *Bufo vulgaris*, or the common toad (the organ of Bidder being left in situ), leads to their complete inversion and the deposition of fertile ova. Birds and amphibians have furnished clearer examples of complete inversion by means of the simple removal of the genitalia. But in birds the power of changing the sex is possessed only by the female, while in toads the capacity is confined to the male. The matter is explained, in part, by the newly gained knowledge of the histogenesis of the genitalia in these two species of vertebrates. Whereas in birds the male genital organs are outlined primarily, in the *Bufonidae*, according to the researches of Beccari and others, it is the female organs that appear first, these being outlined in all the individuals as a progonad, which becomes later the organ of Bidder. In the male, after the removal of the testis, the organ of Bidder develops, becomes an ovary and brings about the total inversion of sex. The presentation of Professor Beccari's paper was followed by an important general discussion, in which Professors Ghigi, Enriquez, Bilancioni, Ducceschi and Lombroso participated.

Professor Lattes offered a communication on the subject "The Biochemical Sources of Human Individuality."

Professor Niccolini, mentioning the name of Dr. Guidi as a collaborator, presented a paper entitled "A Pharmacologic Study on the Rare Earths Praseodymium and Neodymium." The authors have found in these substances astringent and caustic properties, and a capacity of inducing modifications in the blood and in the circulatory apparatus, the last mentioned effects being due chiefly to properties having a stimulative action on the muscular fibers. The intensity of the action increases with the increase of the atomic weight from lanthanum (139.0) to praseodymium (140.9) and to neodymium (144.3).

Dr. Rizzo introduced a communication on brain injuries and the disturbances of motion in teleosts. The speaker directed attention to the differences of opinion among investigators as to the site of the nerve centers lesions of which produce motor

disturbances and disturbances of equilibrium in teleosts, and considered the differences due to the lack of precise knowledge of the normal structure of the brain and to the defective histologic control of the lesions produced experimentally. The author performed a series of exact researches on *Labridae*, producing minutely circumscribed brain lesions with a filiform thermocautery and controlling each experiment with serial microscopic examination.

Dr. Luisada discussed the action currents of the smooth bronchopulmonary musculature. He reported the results of a series of experimental researches applied to animals and to man, which included the registration of the action currents of the bronchial musculature. He studied their nature and the modifications due to various interventions on the nervous system and on the smooth musculature, and to injections of drugs.

Professor Clementi presented two communications: (1) later researches on the incapacity of the organism of birds to reduce urea with fatty acids having three carbon atoms, and (2) a contribution to the knowledge of proprioceptive respiratory reflexes.

After the completion of the scientific session, the election of officers was taken up. Prof. Giulio Chiarugi, anatomist of the University of Florence, was chosen president, and Professor Bottazzi was confirmed as general secretary. Trent was selected as the next place of meeting.

Society for the Protection of Motherhood and Childhood

The annual report of the activities of the Opera per la protezione della maternità e infanzia contains the following data pertaining to the year 1928. The total expenditures were 79,990,000 lire ($4,200,000), of which sum 27,945,540 lire ($1,467,000) was expended for the aid of mothers, and 34,000,000 lire ($1,785,000) for the aid of children, while 12,000,000 lire ($730,000) was used to subsidize various institutes. Eighty-two obstetric or pediatric ambulatoriums were created, in which 20,000 children and 4,700 mothers or expectant mothers were cared for. In addition, there were 300 ambulatoriums that functioned in the provinces. There were eighteen ambulant chairs in puericulture, or child rearing and training, to which 342 consultants were attached, which cared for 54,566 mothers and children. The visiting assistants made 100,000 home calls. To the maternal refectories established by the society there were admitted, in addition, 20,000 women and children. Two thousand expectant mothers were admitted to institutes. The number of mothers aided in the feeding of legitimate children was 9,400, while 12,000 received aid in the feeding of recognized illegitimate children. About 12,000 abandoned or neglected children were sent into the country or were placed in institutes for training, while 5,800 children affected with latent tuberculosis were given prophylactic treatment. A total of 249,870 persons benefited in 1928 from the existing arrangements of the society.

Injury to the Human Organism from the Inhalation of Dust

Professor Devoto, director of the Clinica del lavoro in Milan, delivered an address, recently, before the Accademia medica of Genoa, on the pulmonary pathology of the inhalation of dust. The problem of dust inhalation, which was the subject of papers and of general discussions at the Congress of Occupational Diseases recently held in Lyons, had, for a time, ceased to be a topic of primary interest, owing to the more extended applications of electricity (electrification of railways and of street-car lines) and the improved paving of many streets, but it is again coming to the fore and demanding consideration from investigators. The human organism has, in general, a good defense against dust in the upper air passages, but such defense is sometimes insufficient or even entirely absent; for instance, in city children with adenoids. Special government provisions against diseases due to dust inhalation are now in the course of preparation. The inhalation of silicious dust gives rise to well known specific diseases—silicosis, for example—which are found particularly in miners, stone cutters, filers of iron products, and the like. Professor Devoto and his school have called attention to certain symptoms that enable a physician to make an early diagnosis of silicosis. If those affected leave the dusty occupation, they can prevent aggravations of the disease. From researches carried out at Milan in the Clinica del lavoro it is evident that all inhaled dusts are harmful and conducive to tuberculous disease, as the dusts often serve as the vehicle of the tubercle bacillus, or the dusts favor the development of tubercle bacilli if these are already present. Sojourns in snow-clad sections and in high forest regions, even if periodic, will often eliminate much of the harm caused by the dusts of the city or of the workshop.

A Cranial Goiter

Professor D'Arrigo reported recently to the Accademia delle scienze medico-chirurgiche of Naples a very exceptional case (possibly the only one in the literature) of a cranial goiter associated with a hypoplastic thyroid. The goiter had developed on the cranium of a patient, aged 55, over a period of four years. It sprang from the temporoparietal region (with a history of trauma at that point); had assumed enormous proportions, and had spread like a coif over the head of the patient, who died from an intercurrent disease. The microscopic examination of the neoplasm revealed that it was composed of colloidal and hyperplastic thyroid tissue. The thyroid was hypoplastic (weight 19 Gm.; prevailingly colloidal), as were likewise the pituitary body (weight 0.25 Gm.) and the parathyroids. The testes were atrophic, and the suprarenals were normal.

Aid to Persons Suffering Accidents

The president of the Opera nazionale balilla recently gave precise instructions for the application of the rules pertaining to the aid of members in case of accident. Notification of accidents will refer only to traumatic lesions occurring from a truly accidental cause. No right to indemnity is involved in accidents caused by the use of bicycles, autovehicles, the handling of quadrupeds or participation in the various sports. Excluded from indemnity likewise are persons who are injured "with the consent of the will" or by imprudent acts even though otherwise entitled to protection. In such cases, the attending physician and the chairman of the committee, while refraining from sending in a report of the accident, should call the attention of the family to the need of greater surveillance of their children.

University News

Prof. Raffaello Paolucci, vice president of the chamber of deputies, has been appointed professor of general clinical surgery. He has been called to the chair in that capacity at the University of Parma.

The Dissemination of a Knowledge of Life-Saving Methods

For the purpose of disseminating a knowledge of life-saving methods and of first aid to suffocated persons, the president of the Federazione di nuoto, in agreement with the Società italiana di salvamento, has ordered that in every province experiments shall be performed and illustrations furnished of the most common and the most important methods in use. Demonstrations will be given on the application of dressings and in the method of rescuing drowning persons and resuscitating them. Next year no one will be admitted to the swimming contests who has not taken part in such demonstrations. They should decrease the number of deaths from drowning.

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Marriages

ROBERT WARREN ADAMS, Chetek, Wis., to Miss Thelma Constance Erickson of Santa Cruz, Calif., at Reno, Nev., August 24.

WILLIAM FORREST WEST, JR., Philadelphia, to Miss Sarah Margaret Sissions of Erie, Pa., September 10.

WILLIAM STEWARD BEYER, Rockford, Ill., to Miss Mary Ella Ferguson, at Madison, Wis., October 23.

WALTER BALE SEELYE, Seattle, to Miss Elinor Bense of Walpole, Mass., at Brookline, Mass., July 4.

FRANK S. BOURNS, Seattle, to Mrs. Elizabeth Ross Schonacker, at San Francisco, August 24.

LAWRENCE WILBURN LONG to Miss Anne Robert Wright, both of Jackson, Miss., November 14.

THEODORE A. PETERSON, Holdrege, Neb., to Miss Doris Andrews of Chicago, October 19.

IDA A. BECK, Gridley, Calif., to Mr. Kasper Nichols of Shoshone, Idaho, in September.

JOHN I. APPLEBY, Bellevue, Ohio, to Miss Haugna Klippen of Duluth, October 26.

WILLIAM T. FERRIS to Miss Thelma Mae Swales, both of Chicago, October 10.

Deaths

James Savage Stone ✠ Boston; Harvard University Medical School, Boston, 1894; past president of the Massachusetts Medical Society; member of the American College of Surgeons, the New England Surgical Society and the New England Pediatric Society; formerly instructor in surgery at his alma mater; served during the World War; on the staffs of the Children's Hospital and the Infant's Hospital; aged 61; died, September 28.

Herman Henry Hoppe ✠ Cincinnati; Medical College of Ohio, Cincinnati, 1889; professor of neurology, University of Cincinnati College of Medicine; member of the American Neurological Association and the Central Neuropsychiatric Association; formerly delegate to the American Medical Association; on the staff of the Cincinnati General Hospital; aged 62; died, October 20, of heart disease.

John H. James, Mankato, Minn.; Medical Department of the University of the City of New York, 1875; member of the Minnesota State Medical Association, the American Academy of Ophthalmology and Oto-Laryngology and the American College of Surgeons; aged 83; died, September 19, of coronary thrombosis and arteriosclerosis.

Henson Marlow Hazelton, Lancaster, Ohio; College of Physicians and Surgeons, Baltimore, 1893; member of the Associated Anesthetists of the United States and Canada; member of the House of Delegates of the American Medical Association, 1923, 1924 and 1925; aged 58; died, October 11, of angina pectoris.

Richard W. Johnson ✠ Major, U. S. Army, retired, Palo Alto, Calif.; Medical Department of the University of the City of New York, 1880; entered the Army as an assistant surgeon in 1881; served during the Spanish-American War and retired in 1909; aged 74; died, July 24.

George J. Williams, Hilton Village, Va.; Medical College of Virginia, Richmond, 1898; member of the Medical Society of Virginia; for twenty years on the staff of the Elizabeth Buxton Hospital, Newport News; aged 59; died, October 1, of angina pectoris.

Arthur Edwin Burns, Seattle; Bellevue Hospital Medical College, New York, 1886; member of the Washington State Medical Association and the American College of Surgeons; aged 63; died, September 4, at the Good Samaritan Hospital, San Diego.

George Sharpe Knickerbocker, New York; Medical Department of Columbia College, New York, 1876; member of the Medical Society of the State of New York; aged 80; died, October 15, of uremia and arteriosclerosis.

Oscar Woods Holloway, Durham, N. C.; Medical College of Virginia, Richmond, 1901; member of the Medical Society of the State of North Carolina; on the staff of Watts' Hospital; aged 54; died, October 2, of heart disease.

Cyrus W. Campbell, Hammond, Ind.; Medical College of Indiana, Indianapolis, 1888; member of the Indiana State Medical Association; member of the board of health; aged 79; died, October 22, of chronic myocarditis.

William McMunn Hepburn, Freehold, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1880; member of the Medical Society of New Jersey; aged 74; died, June 9, of myocarditis and mitral stenosis.

Jefferson P. Biehl, Plymouth, Pa.; Jefferson Medical College of Philadelphia, 1883; member of the Medical Society of the State of Pennsylvania; aged 72; died, August 26, of chronic nephritis and uremia.

John William Petitjean, Haubstadt, Ind.; Jefferson Medical College of Philadelphia, 1903; member of the Indiana State Medical Association; aged 53; died suddenly, October 15, of cerebral hemorrhage.

Thomas Wilson White ✠ Detroit; University of Louisville (Ky.) School of Medicine, 1910; member of the Central States Pediatric Society; aged 45; died, October 2, of chronic meningo-encephalitis.

James Matthew Tische, Wood Lake, Neb.; Kentucky School of Medicine, Louisville, 1898; member of the Nebraska State Medical Association; aged 51; died, September 30, of heart disease.

George Franklin Hynes, Fort Smith, Ark.; Cleveland Medical College, 1879; member of the Arkansas Medical Society; aged 81; was killed, September 17, when struck by a trolley car.

Edward G. Cochran, Gladstell, Texas; Jefferson Medical College of Philadelphia, 1882; member of the State Medical Association of Texas; aged 70; died, August 6, of carcinoma of the liver.

Matlock V. Gunn, Bloomington, Ill.; Medical College of Ohio, Cincinnati, 1885; aged 69; died, October 1, in a hospital in Philadelphia, of adenoma of the prostate and acute cystitis.

Percy Walker Gill ✠ Chicago; Illinois Medical College, Chicago, 1908; aged 48; died, October 21, at the Presbyterian Hospital, of chronic nephritis, uremia and bronchopneumonia.

Robert Willis Born, Sandy, Utah (licensed, Utah, 1915); member of the Utah State Medical Association; aged 57; died, October 7, in a hospital at Salt Lake City, of appendicitis.

Clayton W. Burge, Detroit; Detroit College of Medicine and Surgery, 1906; aged 49; died, September 30, at the Grace Hospital of cerebrospinal syphilis and chronic nephritis.

Fred Stuart Haggart ✠ North Hollywood, Calif.; Cleveland University of Medicine and Surgery, 1897; aged 57; died, September 11, at the Roosevelt Hospital, Los Angeles.

Mont M. Hamlin, St. Louis; American Medical College, St. Louis, 1881; formerly member of the state board of health; aged 73; died, October 12, of cerebral hemorrhage.

Clarence Louis Schneider, Deer Creek, Minn.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1902; aged 56; died, September 12, of a self-inflicted bullet wound.

Victor Adolphus Hart, Barrie, Ont., Canada; Trinity Medical College, Toronto, 1896; L.R.C.S., L.R.C.P., Edinburgh, L.F.P.S., Glasgow, 1900; aged 68; died, July 12.

George N. Hidershide, Arcadia, Wis.; Louisville (Ky.) Medical College, 1875; aged 79; died, July 22, at the Winona (Minn.) General Hospital, of myocarditis.

Frank Norman Hillis, Baltimore; College of Physicians and Surgeons, Baltimore, 1912; aged 46; died suddenly, September 19, of coronary thrombosis.

Filomena C. Reyes, Bocaue, Bulacan, P. I.; University of the Philippines College of Medicine, Manila, 1929; aged 26; died, May 23.

Louis F. Kornmann ✠ Clarksburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1895; aged 62; died, October 1.

Travis A. Hudson, Wellington, Texas (licensed, Texas, under the Act of 1907); aged 55; died, September 29, of paralysis.

George Edward Morris, Calexico, Calif.; Rush Medical College, Chicago, 1925; aged 29; died, September 30, of acute alcoholism.

Fred William Zanders, Troy, Ill.; St. Louis Medical College, 1875; Civil War veteran; aged 83; died, October 11, of senility.

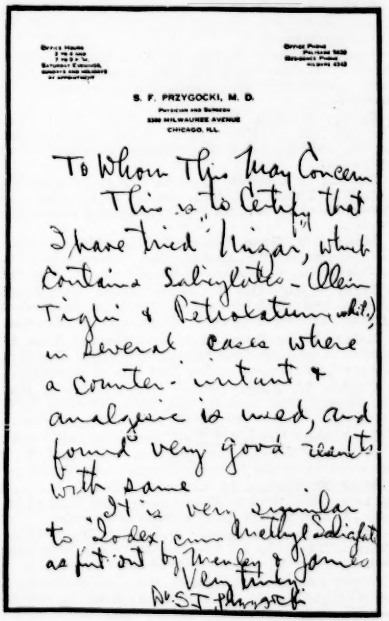
George W. Scally, Chalybeate, Miss. (licensed, Mississippi, 1882); aged 75; died suddenly, August 7, of angina pectoris.

William Sammis, Chicago; Kentucky School of Medicine, Louisville, 1875; aged 76; died suddenly, October 9, in his office.

Bureau of Investigation

"MIZAR AGAIN"

In this department of THE JOURNAL for October 19, there was published, under the heading given above, a brief article describing the case of the postal authorities against one Joseph Sorokowski, a Chicago quack, who for some years has been selling a nostrum known as Mizar. The postal authorities recently proceeded against Sorokowski, with the result that after a due hearing at Washington, the Mizar business was declared a fraud and the United States mails were closed to Sorokowski.



S. F. PRZYGOCKI, M. D.
PHYSICIAN AND SURGEON
1200 MILWAUKEE AVENUE
CHICAGO, ILL.

To Whom This May Concern
This is to Certify that
I have tried "Mizar," which
Contains Salicylates - (Aleu
Tiglin & Petrolatum whit.)
in Several cases where
a Counter-irritant &
analgesic is used, and
found very good results
with same
It is very similar
to "Dodex, cum Methyl Salicylat
as put out by Merck & Jones
Very truly
Dr. S. F. Przygocki

THE JOURNAL in describing briefly the government's case against this product, quoted, among other material, the following paragraph from the memorandum of the Solicitor of the Post Office Department to the Postmaster General:

> "At the conclusion of the hearing, attorneys for Sorokowski were given a week to file such further data as they cared to submit. As a result, a sworn statement has been forwarded here from S. F. Przygocki of Chicago, whose letterhead bears the affix 'M.D.,' and who states he has 'tried' the medicine 'Mizar' in several cases (ailments not indicated) where a 'counter-irritant and analgesic is used' with 'good results.' Another sworn statement is from a Dr. J. F. Korecki, also of Chicago, who states that he has used 'Mizar' in several cases of rheumatism as an 'analgesic and counter-irritant.' The question as to the value of a 'counter-irritant' has already been noted and no further reference thereto appears to be necessary."

THE JOURNAL is now in receipt of two letters from Drs. S. F. Przygocki and J. F. Korecki, respectively. Dr. Korecki writes:

To the Editor:—On page 1241 of the October 19 issue of THE JOURNAL, my name has been linked prominently with the activities of a man Sorokowski. I wish to explain that I have never been connected with any person, firm or corporation, manufacturing or selling proprietary or patent medicines.

I have tried Mizar in a few chronic, desperate cases of so-called rheumatism, where everything else has been tried before, and the patients believed that Mizar may help them, "because they have read about it in the paper."

I did not emphasize curative merits of that proprietary preparation, which—like a great many others—seemed to claim too much. In my hands it did not do any harm, but the patients believed it helped them some. On this basis I expressed my opinion.

According to the just principle, *audiatur et altera pars*, I request that you publish in our JOURNAL this explanation.

J. F. KORECKI, M.D., Chicago.

It will be seen from Dr. Korecki's letter that he does not deny the facts given in the Solicitor's memorandum. The letter from Dr. Przygocki, however, is in a different category. He writes:

To the Editor:—Regarding the account which appeared in THE JOURNAL, October 19, 1929, about my stating that Mizar was used by myself, I wish to say that is not correct. I had been told that one of the ingredients was a form of salicylate, which I stated was used as an analgesic and a counter-irritant. Otherwise, I have no other interest in Mizar or in this man, Sorokowski, who was unknown to me until about a month ago through one of my patients. Please publish this information in THE JOURNAL.

S. F. PRZYGOCKI, M.D., Chicago.

From this it will be seen that Dr. Przygocki denies the statement made in the Solicitor's memorandum to the Postmaster General, to the effect that the doctor had "used Mizar in several cases." As this resolved itself into a question of veracity, the Solicitor of the Post Office Department, Judge Horace J. Donnelly, was asked whether he could let THE JOURNAL have a photographic copy of the sworn statement that Dr. Przygocki was alleged to have written in behalf of Mizar. The Solicitor sent us such a copy and it is reproduced with this article. From the reproduction, it is evident that the Solicitor for the Post Office Department was wholly justified in making the statement that was quoted in THE JOURNAL'S article.

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Correspondence

MEMORIAL FOR WIDAL

To the Editor:—The French colleagues of the lamented Fernand Widal have formed an honorary committee which proposes to perpetuate his memory by a monument, a portrait medallion for the Faculty of Medicine and the Cochin Hospital, and the publication of a complete edition of his works.

In this project a number of Widal's admirers and friends in foreign countries have taken part. I have been invited by the French committee, which consists of Professors Abrami, Bezançon, Lemierre, Valléry-Radot, Brulé and Dr. Joltrain, to confer with those in this country who have had associations with Professor Widal or who cherish his memory, for the purpose of collecting such subscriptions as we Americans may desire to give.

Widal's character and his work are such as richly to deserve this recognition. I feel sure that many Americans will wish to take an active part in the work. If any considerable number of us should feel like adding their mite, no matter how small, to the fund, our contribution will be considerable. I should be grateful for any subscriptions for this fund. Already a considerable number of admirers of Widal in Baltimore and elsewhere have contributed.

It is proposed to send an alphabetical list of all contributors, together with the total sum, to the French committee. It has seemed to us unnecessary to mention the size of the contribution excepting in case it should happen to be unusually large. I hope particularly that those who desire to take part in this demonstration will not hesitate to give even the smallest amount.

Checks may be sent to W. S. Thayer, 1208 Eutaw Place, Baltimore.

I hope greatly that we Americans may pay a worthy tribute to the memory of one whose contributions have been so notable as those of Widal. W. S. THAYER, M.D., Baltimore.

TRICHO AGAIN

To the Editor:—I understand that the Bureau of Investigation is conducting an investigation into the "Tricho System" for removing hair. I have a patient whose history is as follows:

Mrs. J. M. W., aged 49, came to me last spring with a typical roentgen ulcer on the right lower jaw. She also had considerable atrophy and telangiectasis of the skin of the lower part of the face and upper part of the neck on both sides. I diagnosed "Roentgen Ulcer, Atrophy and Telangiectasis." She protested she had never had any x-ray or radium treatment. On October 9 she appeared again and stated she had completed a year's treatment with the Tricho System for removal of hair about nineteen months previously. She had not noticed the changes in her skin until the ulcer appeared. This was evidently a late reaction, although I think she must have had some atrophy for several months. The patient stated that she was guaranteed the treatment would do no harm to her skin. She presented herself for treatment several times during the year. She says she did not know it was an x-ray treatment. Of course, some of the hair disappeared, but there are numerous long hairs here and there in the atrophic skin.

There are several of these Tricho X-Ray Machines operating in this city, as well as in several other cities throughout the country. These beauty parlor specialists are, it seems to me, practicing medicine and using one of the most potent agents that we have to do with in medicine, and one whose use requires the greatest amount of skill.

ROLLIN H. STEVENS, M.D., Detroit.

DANGERS OF RADIUM TAKEN INTERNALLY

To the Editor:—I read with interest your editorial (THE JOURNAL, September 7) on radioactive waters and solutions. You have neglected to point out some of the dangers or ill effects that may possibly arise from some of these preparations which actually contain a certain, though small, amount of radioactive material. I do not refer to emanation which is a gas, such as is supposed to be present in the drinking waters.

A short time ago I came across a man who had taken one of these preparations for two years and, although he had not taken any for some months, he still showed appreciable radioactivity when examined with an electroscope. The amount present compared favorably with the quantities present in some of the cases designated as radium poisoning.

My study of dial painters has convinced me that the blood picture of radioactive persons does not give any indication of the hazard until the insult has proceeded too far for complete recovery. One does not get the low white count in these cases of ingested material that is considered as being among the earlier indications of an overexposure to radium or x-rays externally.

A roentgenogram does not always reveal bone changes until the damage due to the constant bombardment of the rays has advanced. I have had under my observations two cases of spontaneous fractures in girls under 25 years of age who were radioactive for four or five years and yet the roentgenogram did not reveal any pathologic lesion even at the time the fracture took place. The same observation has been made in the jaw, where the changes have been very slow until some dental intervention has taken place and an infection creeps in. It might be said here that in all of these so-called radium poisoning cases the radium is distributed throughout all the bones and is not confined to any particular locality.

It is true that it has been shown by experiments that radium salts administered by mouth or intravenously are generally eliminated within a year. It is also true that some of the dial workers who were known to have ingested some of the luminous material from time to time are not radioactive, now that the pointing of the brush in the mouth has been stopped. But there are others who worked for only short periods who did not eliminate the material and are now paying for the ignorance of the industry in the past. In other words, there is the problem of idiosyncrasies and I feel that physicians who believe in internal administration of radium should be warned to have such patients examined from time to time for radioactivity to detect any tendency toward accumulation of the material in the body. And certainly some of the preparations which are sold, presumably under a physician's prescription but more frequently not, are too dangerous with our present knowledge for such careless distribution, and the general public should be warned against their use except under expert medical advice.

My contention is that often the condition which may arise is not recognized as being due to radium and the blame might easily be placed on some other cause by the attending physician.

FREDERICK B. FLINN,
Columbia University College of Physicians and Surgeons, Institute of Public Health,
New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OZONITE FOR PURIFICATION OF WATER

To the Editor:—Have you any information on the product "Ozonite"? We are in receipt of printed circulars and find that the proposal for purification of our office water supply is utilization of "Electrozone Water Sterilizers" as per circular of Electrozone Water Sterilizer Company of Chicago and manufactured by the Air Conditioning and Engineering Company of St. Louis. Our city water is obtained from Lake Michigan. In times of storm it is sometimes rather heavily contaminated with phenol derivatives arising from certain manufacturing plants. It is at all times treated with chlorine in order to render it bacteriologically safe. Our water is not filtered but it rarely contains objectionable amounts of suspended material. Please omit name and address. M.D., Wisconsin.

ANSWER.—The use of ozone for the destruction of bacteria in water is not new. A number of public water supplies in Europe are treated with ozone, usually following purification by rapid filters. Attempts to utilize this method for public water supplies in this country have not been successful. Two difficulties are encountered. The first is a mechanical one: while ozone in water solution has been shown to be an effective germicide, it is necessary for the ozonated air to be distributed in such a manner that it comes in intimate contact with the bacteria. The second difficulty is that of expense. So far as we are aware, this eliminates ozone as a factor of any importance in purification of public water supplies. Where expense is of secondary importance, such as in the purification of water on a small scale, the method may be found to be applicable. Ozone does not soften the water but it may remove some of the easily oxidizable organic matter. Under proper conditions, bacteria also will be removed.

URTICARIA ASSOCIATED WITH MENSTRUATION

To the Editor:—A girl, aged 15 years, who has menstruated normally for three years, has within the last year begun to have a rash and urticaria preceding each period four to five days and lasting about one week afterward. The urticaria and the edema of the eyes, lips and hands the last three times have been alarming. The administration of 30 minims of epinephrine gives some relief given over a period of three hours, but only when the patient starts to develop some tremor. I can elicit no sugar or food idiosyncrasy. At present she is on calcium. Would you suggest a means of diagnosis in this case and attempt to prescribe?

FRED MONTZ, M.D., Lowden, Iowa.

ANSWER.—This case may be of endocrine or nervous causation, or even one of the intestinal urticarias, lighting up when the resistance is lowered. Skin tests might be made with the ovarian extracts, and subcutaneous injections of these products can be tried between the attacks. If these tests prove positive, an attempt at desensitization with small doses of the same product would be indicated. If the tests are negative and calcium lactate in sufficient dosage (up to 4 Gm., morning and evening) has failed to benefit, bromides can be given just before the expected onset of the attack. If the basal metabolic rate is low, thyroid extract may be helpful. Even if the rate is normal, a trial of small doses of thyroid extract is justifiable. If this fails, on the supposition that the cause is intestinal, purified animal charcoal 4 Gm., may be given three times a day after meals, stirred into half glass of water. Allow no laxatives with this, only an occasional normal salt enema if required. If this does not succeed, intravenous injections of Fischer's solution, or small

doses of neoarsphenamine even in nonsyphilitic patients may be used. Intramuscular injections of the patient's own blood or of one of the milk preparations may help. Skin tests for sensitization to external contact are not often helpful in urticaria but may be tried. Food sensitization is best determined by eliminating diets as proposed by Dale and Thornburg (Diets for the Identification of Food Allergies, THE JOURNAL, August 17, p. 505).

COD LIVER OIL OR VIOSTEROL (IRRADIATED ERGOSTEROL) FOR NURSING MOTHER

To the Editor:—One gains the impression from the literature published by various manufacturers of biologic preparations that either cod liver oil or irradiated ergosterol should be given to all nursing mothers and to all infants for the purpose of preventing rickets and dental caries. 1. Is the evidence sufficient to justify the routine prescribing of cod liver oil or irradiated ergosterol to all nursing and expectant mothers and all infants regardless of the opportunity which they may have to obtain ample exposure to direct sunlight in southern latitudes? 2. What advantage does irradiated ergosterol possess over cod liver oil? 3. Can irradiated ergosterol cause harm if given in too large doses? 4. Can cod liver oil or irradiated ergosterol prevent or cure dental defects other than those occurring as manifestations of rickets? Please omit name.

M.D., Florida.

ANSWER.—1. There is not sufficient evidence to make a direct answer to the advisability of the routine prescribing of cod liver oil or viosterol (irradiated ergosterol) to all expectant or nursing mothers and to all infants regardless of the opportunity which they may have to obtain ample exposure to the direct sunlight. Whatever evidence may be presented in the literature still does not cover the individual case. It is certainly advisable to give an extra supply of vitamin D to both infant and mother.

2. Some of the chief objectionable features of cod liver oil are odor, taste and varied potency; viosterol is odorless and virtually tasteless and is therefore more easily given. Its potency may be raised or lowered and is standardized so that it may be given in drop doses containing amounts of vitamin D comparable to teaspoonful doses of cod liver oil.

3. Sufficient evidence has been accumulated to show that the *recommended doses* of viosterol are well within safe limits. More data are forthcoming.

4. A balanced diet, supplying sufficient mineral salts and especially sufficient calcium, is essential to mother and infant in order to prevent dental caries; according to recent investigations, the addition of a preparation containing vitamin D is useful for correcting a possibly faulty calcium metabolism in such cases.

DIAGNOSIS OF INFECTION, FOOD INTOXICATION OR DRUG ERYTHEMA

To the Editor:—A youth, aged 20, was suddenly taken ill with fever and severe frontal headache. When I saw him the following day his temperature was 102 F. at noon and 103 at 5. p. m., with a pulse slow in proportion. The tongue was heavily coated and there were no other positive signs except marked tenderness over the appendix. The headache was severe and there had been vomiting after taking a self-prescribed saline purge. There were no other symptoms. An enema was given and by 8 o'clock the abdominal tenderness was much less. On the third day the temperature continued around 102 and the pulse from 80 to 90, still with severe headache. At this time there was anorexia and foul taste in the mouth. Urinalysis was negative. On the fourth day the temperature and pulse were 99 and 68 and a rose-colored macular rash was present on the face, chest, abdomen and back. The macules measured from pinpoint to 1 cm. The pharynx was at this time injected. There was no coryza, photophobia, adenopathy or sore throat. The rash lasted twenty-four hours. Following its appearance, the headache cleared up and on the seventh day the patient was feeling well except for weakness. Until the rash appeared, my diagnosis was intestinal toxemia. No other case appeared among people who had eaten the same food. The course suggests roseola infantum, although the patient was an adult. I will appreciate any suggestions. Please omit name.

M.D., North Carolina.

ANSWER.—This patient had a toxic erythema, which may have come from intoxication or from medication. The temperature described certainly inclines to a diagnosis of infection of some sort. A leukocyte count might have helped in the original diagnosis.

IRRITATION BY FORMALDEHYDE

To the Editor:—I have as a patient an embalmer who uses formaldehyde. He has developed bronchitis with marked peribronchitis. He thinks he must continue at his job. How can he avoid fumes? Is there any mask he can use?

JOHN A. COLTEAUX, M.D., Roberts, Ill.

ANSWER.—The Mine Safety Appliances Company, Braddock Avenue and Thomas Boulevard, Pittsburgh, manufactures a mask which, it is claimed, affords protection against formaldehyde. Its use, however, may not prove to be a practical solution for this embalmer's difficulties. Formaldehyde is a highly diffusible gas, which frequently leads to other rooms than the embalming room being penetrated by low concentrations, but sufficient to produce coughing and aggravation of the bronchitis in persons who already may be afflicted with this disease. The wearing of a mask for long periods is a disagreeable procedure and one likely to be discouraging. A change in occupation is usually advised after it has been definitely established that a disabling and persistent occupational disease has arisen. A possible alternative is to adopt, for routine use, embalming fluids that do not contain formaldehyde. Although embalming fluids that contain formaldehyde are almost universally utilized, it is possible to obtain a high order of preservation with other substances.

PURPURA OF UNKNOWN ORIGIN

To the Editor:—A woman, aged 27, weighing about 140 pounds (63.5 Kg.), apparently healthy and exceptionally muscular as the result of heavy work, had a spontaneous hemorrhage on the lateral surface of the lower third of the right arm. She stated that she had been asleep, when she awoke the arm felt "asleep," and when she swung the arm the hemorrhage started. A few days later there was a small subcutaneous hemorrhage in a finger and later another subcutaneous hemorrhage in the thigh. There is no history of hemophilia in either the personal or family histories. I should like to know whether these hemorrhages signify any disease condition or the probable cause. Kindly omit name.

M.D., Iowa.

ANSWER.—A rather careful examination should be made of the patient. The number of blood platelets should be determined and as complete an examination made relative to the purpura as possible. Symptomatically the case is a type of purpura which may be of allergic or internal organic origin. An examination by an expert would be required to determine these points.

POSSIBLE DETERIORATION OF NEOARSPHENAMINE

To the Editor:—In treating a case of psoriasis with neoarsphenamine, I carefully observed all the instructions concerning the administering of the drug. The patient bore five or six previous intravenous injections perfectly well, until once she showed about two hours after such an injection extremely violent signs of intoxication, which caused her a great deal of suffering for about one month. Trying to find an explanation for this unusual reaction, I learned that the particular ampule contents of neoarsphenamine that I used had been manufactured and put on the market in May or June, 1925. In my opinion the contents of this ampule could have deteriorated because of the long standing or because of an undetectable crack of the glass. Please give your opinion whether the quality of the drug was the same at the time of using it as four years ago, or is there any reason to believe that the quality of the powder has changed so as to cause the extremely violent intoxication? Please omit name.

M.D., California.

ANSWER.—The reaction in the case of psoriasis may possibly have been due to deteriorated neoarsphenamine. Some batches of neoarsphenamine are prone to deterioration with age, but such deterioration is accompanied by change in color of the product. Deterioration of this sort may occur soon after the material is manufactured or be delayed for a number of years.

It is possible, as suggested, that the ampule may have had a small crack which was not detected, but in this case too unless the crack happened to be a recent one the material would undergo change which would serve as a warning against its administration.

SIGNIFICANCE OF COLLOIDAL GOLD TEST OF SPINAL FLUID

To the Editor:—Will you kindly let me know the significance of a colloidal gold examination of spinal fluid reading 1223004550. A man, aged 50, was seized with an attack of epigastric pain, which disappeared in a few days; it was followed in a few days by severe pain in the left midthigh and left knee; these disappeared in one week. Pain then appeared in the left lower quadrant of the abdomen and then disappeared. Finally, he suddenly fell out of bed and a complete left-sided hemiplegia was found, with left facial and hypoglossal palsy and both eyes turned to the right. His mentality has diminished greatly, though he understands what is said, most of the time. His pupils were always unequal and reacted poorly to light. His left femoral, popliteal and dorsal pedis arteries show no pulsations. He cannot speak clearly. The blood Wassermann test is negative, even after a provocative neoarsphenamine injection. His first colloidal gold test was negative, but after the provocative neoarsphenamine the colloidal gold curve showed the reading mentioned. 1. What is the diagnosis? 2. What is the interpretation of the colloidal gold curve? 3. Can provocative neoarsphenamine given intravenously bring out a syphilitic curve in the colloidal gold test? Please omit name.

M.D., New York.

ANSWER.—1. The case is probably one of generalized arteriosclerosis, evidenced not only by the cerebral lesion (probably a hemorrhage) with the accompanying hemiplegia and mental dilapidation but also by the absence of pulsation in the vessels of the left leg. The attacks of pain would be explained on the same basis.

2. The colloidal gold curve described cannot be interpreted; the figures given suggest that there was possibly an error in

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the technic of the test. The small degrees of precipitation observed in the first four tubes might occur in many conditions other than syphilis; the complete precipitation in the eighth and ninth tubes is incomprehensible.

3. No.

TREATMENT OF CHRONIC GLOSSITIS

To the Editor:—Please give the treatment for chronic glossitis. The description of the condition which I am treating is found on pages 591 and 592 of French's "Index of Differential Diagnosis," edition 4. I have tried practically all of the ordinary remedies without appreciable results. It is apparently due to an infection, and the organism given in French's book is *Streptococcus pyogenes-longus*. My patient is a woman, aged 23. She had an operation for thyroidectomy three months ago, from which she has made a normal recovery. She has enlarged tonsils, which are to be removed in the near future. Please omit name.

M.D., Virginia.

ANSWER.—Not only is the treatment of the type of glossitis referred to difficult, but the relief of the distressing symptoms is not easy. There is no specific treatment. If there are any etiologic factors such as infections within the mouth they should be removed. The diseased tonsils may be a contributing factor. Defective teeth should have attention. Occasionally a nasopharyngitis or an actual nasal disease interfering with proper breathing may be present. Those forms of glossitis associated with gastro-intestinal disturbances and pernicious anemia do not lend themselves to any great promise of permanent relief. Diluted hydrochloric acid may be given through a glass tube. If the patient smokes, tobacco should be withheld. Spicy foods and hot and cold foods should be avoided. Any of the common alkaline mouth washes or tablets may be used. Some bland ointment may be applied to the tongue with the hope that it will remain on the tongue longer than will a watery application. One or two x-ray exposures may be helpful.

INHALATORS FOR ASPHYXIATION

To the Editor:—Recently a salesman for the E. & J. Inhalator Company approached our local fire department in an endeavor to sell an inhalator. The fire department is most anxious to obtain some type of inhalator, but before doing so is anxious to learn the best type suitable for use by fire departments, and whether the apparatus is basically sound and manufactured by a reputable firm. If by paying an additional amount of money it is able to obtain the best and most satisfactory inhalator on the market, it will be glad to do so. Please omit name.

M.D., Arizona.

ANSWER.—The E. and J. resuscitator is not a desirable apparatus for use by fire departments. It is something along the line of the pulmotor in that it supplies artificial respiration mechanically. The principle involved is thoroughly disapproved by all competent men interested in first aid work. Artificial respiration in field work should be given by the Schäfer prone pressure method, and not by a machine. Furthermore, it should be given only to men who are not breathing and not as a routine to all victims of gas or accidents.

An inhalator designed to administer a mixture of oxygen and 5 or 6 per cent of carbon dioxide is an extremely valuable addition for the first aid work of any fire department, and is used by the departments of all large cities. A satisfactory inhalator is made by the Mine Safety Appliances Company of Pittsburgh.

HISTORY OF THE HYPODERMIC SYRINGE

To the Editor:—Can you give me information pertaining to who invented the hypodermic needle, and when it was invented?

O. C. MORRISON, M.D., Carroll, Iowa.

ANSWER.—Charles Pravaz of Lyons, in March, 1852, had Charrière of Paris make an instrument which became known as the Pravaz syringe. It consisted of a barrel, a plunger and a trocar. Béhier modified it later and added a needle, after which it was gradually developed into the hypodermic syringe as used at the present time. Alexander Wood of Edinburgh devised a syringe and trocar in 1853 for the hypodermic injection of a morphine preparation to relieve neuralgia. Pravaz's syringe antedated Wood's by one and one-half years (March, 1852, to November, 1853). F. Rynd, an Irish surgeon, first practiced subcutaneous medication in 1844 but did not describe his instrument until 1861. It consisted of a needle, a cannula, and a handle fitted with a spring to manipulate the cannula and needle and permit the introduction of fluid subcutaneously. The puncture through the skin was made with a lancet or with the needle. It is probable that Rynd used his instrument in 1844, but this is not definite. Regardless of that, Pravaz deserves the credit for inventing the hypodermic syringe. Rynd's instrument was not a syringe: it entered and spread the subcutaneous tissues and permitted the fluid to run in by force of gravity. Charles Hunter of England proposed the term "hypodermic" in 1859. He also designed a special syringe with a glass barrel and silver needles. The metal piston syringe was invented about 1896. The all-glass barrel and piston syringe, with terminal glass screw needle attachment, first appeared about 1895. The history of the syringe is considered in detail by Pfender (*Washington Medical Annals* **10**:346, 1911) and by Macht (THE JOURNAL, March 18, 1916, p. 856).

FUNGICIDAL VALUE OF VARIOUS DRUGS

To the Editor:—Can you advise me as to the relative fungicidal value of salicylic acid, sodium salicylate, benzoic acid, sodium benzoate, thymol and iodine? Are there any better fungicides than these for cutaneous use? Does methyl salicylate have any germicidal or fungicidal action, or does it have the action of salicylic acid on the skin?

W. A. HINCKLE, M.D., Peoria, Ill.

ANSWER.—Sodium salicylate as well as sodium benzoate is devoid of fungicidal properties. Thymol stands at the head of the fungicides among the volatile oils, and it is superior to benzoic or salicylic acids. Iodine is undoubtedly more powerful than thymol. Methyl salicylate has the fungicidal properties of volatile oils but is much inferior to thymol. J. Schaffer (Therapie der Haut- und venerischen Krankheiten, Berlin, Urban & Schwarzenberg, 1919) gives the following schedule of antiparasitic action in descending order of potency as well as of irritative action in dermatomycoses: chrysarobin, pyrogallol, mercurials, iodine, tars, naphthol, lenigallol, sulphur, resorcinol, salicylic acid.

TREATMENT OF PREPATELLAR BURSITIS

To the Editor:—I have a patient with a chronic prepatellar bursitis following slight injury to the patella. The bursa was aspirated once, but the fluid reformed at once. Is the injection method of obliteration safe and satisfactory? What reaction may be expected? What solution and what amount should be used? Is some stiffness in the knee to be expected? Please omit name.

M.D., Minnesota.

ANSWER.—The injection method of obliteration is safe and usually satisfactory. It may have to be repeated one or more times. A serious reaction need not be anticipated. The most common solution used has been the combination of camphor and phenol. Permanent stiffness of the knee joint seldom results.

TREATMENT OF WASSERMANN-FAST ASYMPTOMATIC SYPHILIS

To the Editor:—A man with syphilis came to me with the report of a 4 plus Wassermann reaction after having received treatments with an arsenical preparation and some form of mercury by mouth, by another physician. Since June 7 he has received intravenous injections of neoarsphenamine, three doses of 0.6 Gm., three doses of 0.75 Gm. and six doses of 0.9 Gm. I alternated this treatment with phenyl formitate of bismuth 3 grains, intramuscularly, so that to date he has also received twelve doses of this preparation. He has had another Wassermann test taken and the report was 4 plus. Kindly advise me how to proceed further with that patient in order to effect a cure. Please omit name.

M.D., New York.

ANSWER.—Bismuth compounds and silver arsphenamine have often been mentioned in the literature as particularly effective in the treatment of Wassermann-fast asymptomatic syphilis. The fundamental principle is to vary the mode of attack by changing the drugs. There is no way of estimating the amount of treatment required by a Wassermann-fast patient. It should be guided by the clinical results in the individual patient without regard to the Wassermann reaction.

USE OF ANTIMENINGITIC SERUM

To the Editor:—In epidemic meningitis, how long should the injection of antimeningitic serum intraspinally, i. e., lumbar puncture, be continued? The Mulford Company, on the packages, recommends four injections of 15 cc. each. The reason I am asking is that I have given a patient five injections of Mulford's serum, 15 cc. daily. On the fifth injection the patient had a chill and sudden elevation of temperature while the spinal fluid had returned to a straw color. Before treatment it was cloudy, then hemorrhagic. I discontinued the injections, believing that a protein reaction was taking place. Was this the proper thing to do? If not, what would have been your procedure? Please omit name.

M.D., Kansas.

ANSWER.—The usual practice is to make daily injections of serum until three or four doses have been given. Then, if the fluid has become clear, to omit the puncture a day, and make one on the second day. The punctures and administration of serum should not be finally discontinued until the spinal fluid is sterile; otherwise there is danger of a relapse.

TREATMENT OF NEURODERMATITIS

To the Editor:—I have a case of symmetrical neurodermatitis with lesions appearing on both sides of body. When the lesions come out, the site is slightly discolored and very itchy and the skin gives an appearance of losing its elasticity. Blood examination is negative repeatedly, even with a provocative dose of arsphenamine. Only slight relief is given by heavy purgatives. Can you advise me of some treatment?

DAVID H. KIANG, M.D., Boston.

ANSWER.—Care of the patient's general health is of importance in the treatment of neurodermatitis. He should have plenty of rest and be freed to as great an extent as possible from mental and physical strain, including particularly fatigue from overwork and worry. Arsenic internally, if not contraindicated, is definitely of service, especially when employed along with antipruritic ointments and roentgen treatments locally. Needless to say, the last mentioned should be administered only by one skilled in the use of this agent in the treatment of skin diseases.

COCAINIZATION OF NASAL GANGLION—HEART MEASUREMENT BY FLUOROSCOPE

To the Editor:—1. Can you give me in detail the method of application of cocaine or phenol solution to the nasal ganglion? 2. Also method of heart measurement by the fluoroscope at less than 6 feet?

M. B. MCCAUSLAND, M.D., Detroit.

ANSWER.—1. Meckel's ganglion lies directly behind the posterior end of the middle turbinate. By means of an applicator covered with cotton, one may apply one drop of a 90 per cent aqueous solution of cocaine hydrochloride with a curved applicator, going round the posterior end of the middle turbinate or using a fairly straight one and passing it beneath the posterior end of the middle turbinate. A dilute phenol solution of 0.5 per cent in 85 per cent alcohol may be injected into the ganglion by means of a curved needle passing round the posterior end of the middle turbinate or a straight needle transfixing the posterior end of the middle turbinate and thus reaching the ganglion. Some rhinologists attack the ganglion by passing a right angled needle directly up into the posterior palatine canal. In some cases, mishaps have occurred with the latter method because there are sometimes anatomic variations in the direction of the canal, so that this method was held in some disfavor by Sluder. It is a comparatively simple procedure, and with the warning just mentioned borne in mind, it may be used with good effect in many cases.

2. There is but one way in which true heart measurements can be obtained fluoroscopically, the so-called orthodiagraphic method. The application of this method requires a fluoroscope which is so constructed that the examiner can move the x-ray tube carriage independent of the movements of the x-ray screen. The x-ray screen must be held in a fixed position, usually by a suitable locking device after the screen has been placed in the exact center of the apparatus. The focal spot of the x-ray tube must be accurately centered in line with the center of the diaphragm or shutters. A vertical line is drawn on the glass surface covering the fluoroscopic screen in its center. It is convenient to place on the fluoroscopic screen surface a sheet of clear glass or transparent celluloid on which is a similar vertical line indicating its center. On this removable sheet is to be traced the heart outline and from this may be traced on the patient's record sheet the results of the procedure. The modus operandi is as follows: The patient is placed behind the x-ray screen facing the examiner in as nearly direct an anteroposterior position as is possible, with the vertical center of the body (usually the shadows of the spinous processes of the dorsal vertebrae) set to correspond to the vertical line drawn on the recording surface when the focal spot is in direct line with it. It is helpful to place a small opaque mark, such as a coin, on the midsternal line of the patient's body and a second marker in the midspinal line posteriorly; when the shadows of these two objects superimpose on the screen directly on the vertical line, the patient is in proper position. With the screen firmly locked and unmovable and the patient instructed not to move in any way, the x-ray tube is displaced toward the left to the point of the right cardiophrenic angle and, with the diaphragm narrowed to the smallest opening that will permit illumination of this angle, a mark is placed by a grease pencil on this spot. Then the tube is displaced upward a few centimeters along the margin of the right auricle and again a marker is placed on the recording surface, the narrowest opening of the shutters being used. One proceeds in like manner round the entire median shadow to completion at the left cardiophrenic angle. The resulting series of dots may now be connected with a continuous line, which will show the contour of the heart and aorta and from which the exact measurements may be taken by direct scale reading. A fluoroscope which does not permit independent movement of screen and tube cannot be used for orthodiagraphic measurements. A 6 foot or 2 meter distance x-ray film exposure of the heart gives about the same information, but actually the shadow areas on such films are larger than are the true dimensions on the heart, because of the unavoidable divergence of the x-rays, and this error increases progressively as the distance from the point of the central x-ray beam increases.

TREATMENT OF CONGENITAL SYPHILIS

To the Editor:—A girl, aged 15, after intensive treatment for congenital syphilis for about six years, still has a 3 plus Wassermann reaction in the blood and a positive reaction in the spinal fluid. In addition to these years of treatment with neoarsphenamine and mercury, she has received courses of bismuth the past year. She has always been perfectly well and has never had symptoms of the disease. The father had symptoms and his Wassermann reaction was 4 plus, as also the mother and daughter. The father and mother became Wassermann negative after about two years' intensive treatment and have remained so. Please suggest further management of this case; also give your opinion of the malarial treatment, with abstract of technic or references and advisability of this treatment in this kind of case. Please omit name.

M.D., Idaho.

ANSWER.—Some patients with hereditary syphilis present absolutely no evidence of syphilis other than a positive blood Wassermann reaction. In a few of these patients this serologic finding proves totally resistant to treatment. It would seem that if ever a persistent positive blood Wassermann reaction would be without meaning it should be in a perfectly well girl who has been thoroughly treated. The same comment applies to a positive spinal fluid in these circumstances, but our knowledge from experience is less in that situation. Malaria therapy is given in full detail in all the recent standard textbooks on syphilis.

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Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

DELAWARE: Wilmington, Dec. 10-12, 1929. Sec., Dr. Harold Springer, 1013 Washington St., Wilmington, Del.

FLORIDA: Miami, Nov. 19-20, 1929. Sec., Dr. William M. Rowlett, 812 Citizens Bank Bldg., Tampa, Fla.

KANSAS: Topeka, Dec. 10, 1919. Sec., Dr. Albert S. Ross, Sabetha, Kan.

KENTUCKY: Louisville, Dec. 3-5, 1929. Sec., Dr. A. T. McCormack, 532 West Main St., Louisville, Ky.

MARYLAND: Baltimore, Dec. 10-13, 1929. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore, Md.

NATIONAL BOARD: Feb. 12-14, 1930. In all centers where there are five or more candidates. Dir., Mr. E. S. Elwood, 225 South Fifteenth St., Philadelphia, Pa.

NORTH CAROLINA: Durham, Nov. 27, 1929. (Endorsement of Credentials only.) Sec., Dr. J. W. MacConnell, Davidson, N. C.

OHIO: Columbus, Dec. 4-6, 1929. Sec., Dr. H. M. Platter, 85 East Gay St., Columbus, Ohio.

TEXAS: Dallas, Nov. 19-21, 1929. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas, Texas.

UTAH: Salt Lake City, Dec. 17-18, 1929. Director, Mr. S. W. Golding, 412 State Capitol Bldg., Salt Lake City, Utah.

VIRGINIA: Richmond, Dec. 3, 1929. Sec., Dr. J. W. Preston, 720 Shenandoah Life Bldg., Roanoke, Va.

WEST VIRGINIA: Morgantown, Nov. 26-28, 1929. Sec., Dr. W. T. Henshaw, Public Health Council, Charleston, W. Va.

WISCONSIN: Milwaukee, Dec. 14, 1929. Basic Science. Sec., Prof. Robert N. Bauer, 3410 Wisconsin Ave., Milwaukee, Wis.

Illinois June Examination

Mr. V. C. Michels, superintendent of registration of the Department of Registration and Education of the State of Illinois, reports the written and practical examination held at Chicago, June 25-29, 1929. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Two hundred and twenty candidates were examined, 211 of whom passed and 9 failed. Twenty-six candidates were licensed through reciprocity with other states and 3 by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Howard University School of Medicine	(1928)		76
Loyola University School of Medicine	(1927)		79,
(1929) 76, 76, 77, 77, 78, 78, 78, 78, 78, 79, 79, 79, 79, 79, 79, 79, 80, 80, 80, 80, 80, 81, 81, 81, 81, 81, 81, 82, 82, 82, 82, 83, 83, 84, 85, 85, 85, 87			
Northwestern University Medical School	(1928)		80,
(1929) 75, 76, 76, 77, 77, 78, 78, 78, 79, 79, 79, 79, 80, 80, 81, 81, 81, 82, 82, 82, 82, 83, 83, 83, 83, 83, 83, 84, 84, 84, 84, 85, 87			

Rush Medical College.....(1927) 84
(1928) 78, 78, (1929) 78, 78, 78, 79, 79, 79, 80, 80, 80, 80, 81, 81, 82, 82, 82, 82, 82, 82, 82, 83, 83, 83, 84, 86, 86, 86, 87, 87
University of Illinois College of Medicine.....(1929) 76, 76, 76, 77, 77, 77, 77, 77, 77, 77, 78, 78, 79, 79, 79, 79, 79, 79, 79, 80, 80, 80, 80, 80, 80, 80, 80, 80, 80, 81, 81, 81, 81, 81, 81, 81, 81, 81, 81, 82, 82, 82, 82, 82, 82, 83, 83, 83, 83, 83, 83, 83, 83, 83, 84, 84, 85, 85, 85, 86, 86, 86, 86, 87, 87, 88
State University of Iowa College of Medicine.....(1928) 81, 82
Johns Hopkins University School of Medicine.....(1928) 81, 81
Harvard University Medical School.....(1928) 76
St. Louis University School of Medicine.....(1928) 75, 76, 80, 82
Washington University School of Medicine..(1926) 81, (1928) 85
University of Oregon Medical School.....(1928) 75
Jefferson Medical College.....(1928) 82
Meharry Medical School.....(1928) 75
University of Texas School of Medicine.....(1929) 77
Marquette University School of Medicine.....(1929) 75, 77, 80
University of Copenhagen Faculty of Medicine.....(1922) 78
University of Guadalajara Faculty of Medicine.....(1925) 77
Nondescript* 19

College	FAILED	Year Grad.	Per Cent
Howard University School of Medicine		(1928)	64
Loyola University School of Medicine		(1929)	77, 77
Northwestern University Medical School		(1929)	74
University of Illinois College of Medicine		(1929)	72
Meharry Medical College		(1928)	72
University of Athens Faculty of Medicine		(1923)	67
Nondescript*			2

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University School of Medicine		(1926)	Louisiana
Rush Medical College		(1927)	California
University of Illinois College of Medicine		(1928)	Missouri
State Univ. of Iowa College of Med.		(1925) (3), (1927) (3)	Iowa
Tulane University School of Medicine		(1927)	Louisiana
University of Michigan Medical School		(1926), (1927)	Michigan
University of Minnesota Medical School		(1928)	Minnesota
St. Louis University School of Med.		(1922), (1925), (1927)	Missouri
Washington University School of Med. (1924) California		(1912) (1923) (1927)	Missouri
Creighton University School of Medicine		(1927) (1928)	Nebraska
University of Oklahoma School of Medicine		(1928)	Oklahoma
Meharry Medical College		(1927)	Tennessee
Marquette University School of Medicine		(1926)	Wisconsin
Queen's University Faculty of Medicine		(1926)	Tennessee

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Northwestern University Medical School		(1928)	U. S. Navy
University of Illinois College of Medicine		(1929)	U. S. Navy
University of Toronto Faculty of Medicine		(1925)	N. B. M. Ex.

* Institutions not recognized as medical schools by the American Medical Association.

Indiana June Examination

Dr. W. R. Davidson, secretary of the Board of Medical Registration and Examination, reports the written examination held at Indianapolis, June 25-27, 1929. The examination covered 16 subjects and included 100 questions. An average of 75 per cent was required to pass. One hundred and twenty candidates were examined and passed, including 4 osteopaths. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine		(1928)	87.9, 85
Yale University School of Medicine		(1928)	89.7
Northwestern University Medical School		(1928)	77.5
Rush Medical College		(1928)	88.8
University of Illinois College of Medicine		(1929)	87.2
Indiana University School of Medicine		(1927) 87.3, (1928) (1929) 80.5, 80.8, 81.4, 82.1, 82.1, 82.7, 82.8, 83.3, 83.3, 83.5, 83.6, 83.9, 83.9, 84, 84.2, 84.2, 84.3, 84.4, 84.6, 84.7, 84.7, 84.7, 84.8, 84.8, 84.8 85, 85.1, 85.2, 85.2, 85.3, 85.3, 85.3, 85.5, 85.6, 85.7, 85.8, 86, 86.2, 86.2, 86.3, 86.3, 86.3, 86.4, 86.5, 86.5, 86.6, 86.7, 86.7, 86.7, 86.7, 86.7, 86.9, 86.9, 86.9, 86.9, 87, 87.1, 87.1, 87.2, 87.2, 87.3, 87.4, 87.5, 87.5, 87.6, 87.7, 87.7, 87.8, 87.8, 87.9, 87.9, 88, 88.2, 88.2, 88.3, 88.3, 88.3, 88.4, 88.5, 88.5, 88.6, 88.6, 89, 89.1, 89.1, 89.2, 89.5, 89.6, 90, 90, 90.1, 90.5, 90.5, 90.7, 90.7, 90.7, 91.3, 91.8	86.4,
University of Kansas School of Medicine		(1928)	84.7
Harvard University Medical School		(1927)	89.1
Washington University School of Medicine		(1928)	90.8
Eclectic Medical College of Cincinnati		(1929)	86.2, 86.7
University of Cincinnati College of Medicine		(1929)*	89.4
Hahnemann Med. College and Hospital of Philadelphia		(1929)	87.5
Marquette University School of Medicine		(1929)	84.5
University of Wisconsin Medical School		(1928)	87.5
Osteopaths		(1929) 88, 88.4, 89.2,	91.2

* This candidate has received his M.B. degree and will receive his M.D. degree on completion of one year's internship in a hospital.

Book Notices

OUTLINE OF PREVENTIVE MEDICINE FOR MEDICAL PRACTITIONERS AND STUDENTS. Prepared under the Auspices of the Committee on Public Health Relations, New York Academy of Medicine. Twenty-One Contributors. Editorial Committee—Frederic E. Sondern, Chas. Gordon Heyd, and E. H. L. Corwin. Leatherette. Price, $5. Pp. 398. New York: Paul B. Hoeber, Inc., 1929.

This book is designed to aid the general practitioner in the important task of preserving the health of the people not only by preventing disease but also by preventing serious turns and complications in diseases that have been contracted. A statement in the introduction by the editorial committee explains the origin and plan of the book: "Repeated requests for an outline of the practical features in the prevention of disease induced the Public Health Relations Committee of the New York Academy of Medicine to appoint a subcommittee for the purpose of assembling and supervising the publication of a brief manual of the subject. Each contributor to this volume has written of the ways in which his specialty is related to preventive medicine, limiting his contribution to salient suggestions based on individual experience, with no attempt at textbook completeness. It is hoped that in this way the publication will serve the purpose for which it is intended." In addition to the main specialties in medical practice the topics considered include periodic health examination, incidence of disease, laboratory aids, general medicine, allergy, tuberculosis, the surgical aspects of preventive medicine, industrial diseases, and narcotic drug addiction. The presentation in many of the articles is rather vague, hurried and fragmentary; the important subject of the relation of the physician to drug addiction, for instance, is covered in less than two pages. The articles consist mainly of attempts of specialists to advise and instruct the general practitioner. The voice of the administrator of public health is not given any hearing and the relation of the general practitioner to the health departments of city and state is not discussed. The purpose of the book is altogether praiseworthy and in spite of serious shortcomings it will be of service in directing attention to the fundamental obligation of the physician to help all he can in preventing disease.

AN INTRODUCTION TO PHARMACOLOGY AND THERAPEUTICS. By J. A. Gunn, M.D., D.Sc., M.A., Professor of Pharmacology in the University of Oxford. Cloth. Price, $1.50. Pp. 220. New York: Oxford University Press, 1929.

The quotation with which this book starts, "Were angels to write books, they would never write folios," has evidently been the author's inspiration at achieving brevity by selection and arrangement rather than by compression. The book is unusually well planned; it is so well gotten up that a medical man who knows all there is in it knows nearly all that is required of him in pharmacology. However, like practically all other books written by pharmacologists, it is deficient in practical therapeutics.

STRÜMPELL-SEYFARTH LEHRBUCH DER SPEZIELLEN PATHOLOGIE UND THERAPIE DER INNEREN KRANKHEITEN FÜR STUDIERENDE UND ÄRZTE. Band I. Von Dr. Med. et Phil. C. Seyfarth, a. o. Professor für innere Medizin. Twenty-eighth edition. Paper. Price, 23 marks. Pp. 880, with 188 illustrations. Leipzig: F. C. W. Vogel, 1929.

Previous reviews in these columns of this standard work have all been commendatory, as is this one, for Strümpell's Practice is highly rated wherever medicine is taught and German medical books are read. This position has been won by frequent revisions and endorsement of modern discoveries after their confirmation in the clinic at Leipzig, and by the skilful manner with which the amount of consideration given to each topic is adjusted to its relative importance. In other words, the book is unusually well balanced. This quality naturally includes thoroughness, from which the work is reliable for reference. One rarely consults Strümpell without finding the desired information.

The customary deletion of the less valuable and introduction of new knowledge has been accomplished again. New technical procedures of diagnosis and new clinical observations of proved worth are included. The difficulty in concluding what should be omitted and replaced by modern views and the work

also steadily maintained at about the size of recent editions has once more been skilfully managed. Undulant fever has its first mention; the sections on dengue fever, pulmonary abscess and ulcerative colitis have been rewritten, and plates VI and VII, illustrating the roentgenoscopic features of pulmonary disease, are new; also many other illustrations. On the whole, only alterations in keeping with studious attention to the needs of yearly revisions have been made.

THE RIDDLE OF SEX. The Medical and Social Aspects of Sex, Love and Marriage. By Joseph Tenenbaum, M.D. Cloth. Price, $3.50. Pp. 362. New York: Macaulay Company, 1929.

We are, in these modern times, much concerned with sex. Dr. Tenenbaum has attempted to present in one volume the present scientific point of view concerning sexual factors in human life. He presents the main facts with a fine background of practical psychology. He becomes heated indeed only in his discussion of birth control, calling to the high heavens for freedom to study and teach birth control methods. The book ranges the entire gamut of sex subjects from birth, through adolescence, marriage, sexual aberration and disease, and rejuvenation. Dr. Tenenbaum has kept abreast of the literature in his field and he is under no illusions of what the rejuvenists are actually accomplishing.

„DIE THERAPEUTISCHE REGISTRATUR." Herausgegeben von Professor Dr. Fritz Munk. Abt. A.: Die Behandlung nach Gruppen je alphabetisch geordneter Krankheiten mit ausführlicher Rezeptur. Abt. B.: Mehr als 750 der bekannten und bewährten Patentpräparate. Abt. C.: Die Eigenschaften der Chemikalien und galenischen Präparate. Abt. D.: Tabellen über allgemeine Regeln für die Rezeptur und kurze Abhandlungen über besondere Formen der Therapie. Price, 4.50 marks per section. Berlin: Buchholz & Co., 1927.

The manufacturer of this proposition had an idea. He put in a big card index case suitably designed a complete system of diagnosis, therapy and materia medica. By its use the practice of medicine is reduced to reliance on one's ability to pick out the right cards. There used to be a parrot that could tell fortunes in the same way. The trouble with the box is not in the sections devoted to diagnosis and general therapy, which follow much the same lines as the routine material to be found in American textbooks. The major portion of the outfit consists of some thousands of cards concerning German and other proprietary preparations, each card containing name, chemistry, dosage, therapeutic indications, and sample prescriptions. Most of the proprietary preparations are not available in this country, and the indications are far beyond the actual usefulness of the products. There seemed to be some idea of tying up the numbers on the diagnosis and general therapy cards with the numbers on the prescription cards, but the box fell apart in transit and the reviewer has been so busy that he has not been able as yet to work this out.

THE ANATOMY AND PHYSIOLOGY OF CAPILLARIES. By August Krogh, Ph.D., LL.D., Professor of Zoö-Physiology, Copenhagen University. Second edition. Cloth. Price, $4. Pp. 422, with 101 illustrations. New Haven: Yale University Press, 1929.

The first edition of this noteworthy monograph came out eight years ago. The present volume is in many respects a new book. Dr. Krogh states that "a wealth of new information on the problems discussed has had to be incorporated, but it is of far greater importance that, mainly by the work of Thomas Lewis and his school and of E. M. Landis, new points of view have been obtained, new problems have arisen, and the science of capillaries has made a definite step forward from the descriptive stage to that of exact measurement." The treatment of the subject is so thoroughgoing that the book might actually have been called the Structure and Function of the Capillaries in Health and in Disease. This makes it peculiarly valuable to the physician. The style is clear and concise; the illustrations are excellent. In view of the contents, size and make-up of the book, the price is so moderate that the publishers are evidently producing the volume primarily as a service to physiology and to medicine. Many of the readers will recall that the author is one of the Nobel prize winners in the field of medicine, the prize being given largely because of this noteworthy work on the physiology of the capillaries. The book deserves a place in the library of every biologic investigator and physician.

CAIN OR THE FUTURE OF CRIME. By George Godwin. Cloth. Price, $1. Pp. 108. New York: E. P. Dutton and Company, Inc., 1929.

This is one of the most recent volumes in the Dutton Today and Tomorrow Series. At a time when most of the easy readers of the world are gorging themselves on detective stories and the journalism of crime, it is refreshing to find a sound consideration of the subject with an attempt to understand why our control of crime has failed, and what will be the possibilities of the future. The analysis is clear and dispassionate, thoroughly supported by sound statistics. It reveals the inadequacies of the courts and the failure of legal punishment and of all other methods to touch the crime problem of today. The author is convinced that the causes of crime are bad heredity and bad environment, and that the only cure is the elimination of degenerate human stock, the sterilization of all waste human material, and the improvement of environment. If this is true, it seems unlikely that the crime problem will ever be solved in America, the most lawless country in the world today.

DIE RADIUMBEHANDLUNG IN DER AUGENHEILKUNDE. Von Dr. Lea Kumer, o. ö. Univ.-Prof., Innsbruck, und Dr. L. Sallmann, Assistent der II. Universitäts-Augenklinik in Wien. Paper. Price, 14.40 marks. Pp. 198, with 65 illustrations. Vienna: Julius Springer, 1929.

Usually, when a man is enthusiastic enough to write a book about a subject to which he has devoted eight or more years, his judgment is apt to be badly warped; but these authors have retained a sane outlook and are generous in recording the failures of radium therapy. First the physical properties of radium, the methods of application and the resultant possible harm to various portions of the eye are described; then the clinical use of radium in and around the eye, based on the literature and on their own vast experience in the Vienna radium station, with finally a comprehensive but still incomplete bibliography. The first article by Martin Cohen dealing with the effects of radium on incipient cataract is discussed and discredited, but his article that appeared five years later is not mentioned. As to the results, it would seem that the clinical application of radium in ophthalmology is limited to its use in tumors (particularly angiomas and carcinomas that have not involved any bone structure), possibly vernal conjunctivitis and trachoma, and questionably extra-ocular tuberculosis. But the book is worth while and deserves study by the clinician, probably more for the negative than for the positive value. It is extensively illustrated with before-and-after pictures and has the usual curse-provoking ersatz cover.

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MATERIA MEDICA AND THERAPEUTICS INCLUDING PHARMACY AND PHARMACOLOGY, WITH AN INDEX OF SYMPTOMS AND DISEASES. By Reynold Webb Wilcox, M.A., M.D., LL.D., Lieutenant Colonel Auxiliary Reserve, United States Army. Twelfth edition. Cloth. Price, $5 net. Pp. 690. Philadelphia: P. Blakiston's Son & Company, Inc., 1929.

This is a thoroughgoing treatise divided into two parts, part 1 dealing with materia medica and pharmacy and part 2 with pharmacology and therapeutics. The subject matter is handled in the now rather old-fashioned manner of discussing, for instance, the action of the various potassium salts separately from that of the sodium salts, without attempting to give the student the comprehensive point of view that modern pharmacology has made available. In order words, it is a good type of the textbook in vogue before pharmacologists introduced revolutionary methods in teaching which have resulted in a better comprehension of the mode of action of drugs, though, perhaps, at a sacrifice of knowledge of some of the therapeutic facts that are better handled in this book than in most of those for which professional pharmacologists are responsible.

THE TREATMENT OF RHEUMATOID ARTHRITIS. By A. H. Douthwaite, M.D., F.R.C.P., Assistant Physician, Guy's Hospital. Cloth. Price, 6/- net. Pp. 80, with 2 illustrations. London: H. K. Lewis & Company, Ltd., 1929.

The first chapter of this little volume is devoted to classification, and a definition of just what the author proposes to consider under the title of rheumatoid arthritis. In the present state of confusion in regard to nomenclature, this constitutes a valuable introduction, and one for which the reader is certain to be grateful. The remainder of the first portion of the volume is concerned with a judicial exposition of the etiologic factors which have been considered, as focal infections, endocrine factors and metabolic changes. The author states in the

preface that he will attempt to steer a middle course in his consideration of the different views, and this he does, to the profit of the reader. The second part of the volume takes up the question of treatment and especially the orthopedic treatment. It is to such orthopedic treatment that in practically all of such cases recourse must be had. As the author says, manipulation and the use of mechanical appliances are capable of restoring apparently incurable cripples to an active and useful life, and to at least some degree of comfort, often complete. The book is short enough to be read in one evening, is clearly written and clearly printed, and can be recommended to all, but especially to the practitioner.

AN INTRODUCTION TO THE STUDY OF THE NERVOUS SYSTEM. By E. E. Hewer, D.Sc., Lecturer in Histology and Assistant Lecturer in Physiology at the London (Royal Free Hospital) School of Medicine for Women, and G. M. Sandes, M.B., B.S., M.R.C.S., Demonstrator in Anatomy at the above school. Cloth. Price, $6.50. Pp. 104, with 55 illustrations. St. Louis: C. V. Mosby Company, 1929.

In the foreword, by Prof. Winifred C. Cullis of London, it is made plain that the primary purpose of this book is to assist students who are "working for examinations," and in the introduction to the American edition, Dr. Sidney I. Schwab of St. Louis states that it is particularly valuable to third year students as a review of anatomy and physiology in preparation for clinical neurology. However well the work may serve the first purpose for English medical students, it cannot be highly recommended to American students for either purpose. The book consists essentially of a series of fifty-five clearly printed diagrams of selected nervous connections, with a brief accompanying text of less than a hundred pages. Better diagrams than most of these are available in the textbooks presumably already in the students' hands, and the very schematic figures here assembled with no adequate explanation or context give an oversimplification which is useful perhaps for examination purposes but misleading as a guide to practice. The student beginning his clinical experience in neurology needs all possible encouragement to see things whole, to evaluate symptoms as related to the total situation; and the rigid schemata of reflex arcs which were properly used as pedagogic devices in the preclinical introductory courses should be outgrown as rapidly as possible in actual practice. Apart from these general pedagogic considerations, the selection of topics for illustration and their treatment leave much to be desired. Then, too, the anatomic names employed are likely to be confusing to the student who is already familiar with any of the better recent textbooks in the English language. Some synonyms are given, but among these one notices a careful avoidance of BNA terms. Most American students are accustomed to these terms and they will find considerable difficulty in the correlation of these schemata with the only sources available to them which might fill in the details of the picture and enable them to translate the diagram into actual bodily organization. The latter is the essential task of the teacher of clinical neurology.

LES SYNDROMES ENDOCRINES. Par le Dr. R. Porak, directeur du laboratoire de biologie médicale de la Province de Bolivar. Préface du Professeur H. Roger. Second edition. Paper. Price, 90 francs. Pp. 554, with 39 illustrations. Paris: Gaston Doin & Cie, 1929.

This is a well written and, on the whole, reliable summary of symptoms and treatment of disorders due or supposed to be due to endocrine disturbances. In the first part of the volume Dr. Porak discusses the endocrine factors in disturbances of growth, of sex function, of circulation, of digestion, of nutrition and of the skin. The second part deals primarily with endocrine disturbances leading to or associated with nervous disorders. The author catalogues most of the therapeutic attempts and these are, of course, extremely diverse. In some cases he cites personal experience in the form of clinical reports. The remainder of the volume, sixty pages, contains short chapters on various related topics by authors other than Dr. Porak. Some of these chapters are less scientific than the main part. Thus, on page 542, Dr. Zalewsky states that "actinotherapy, judiciously applied as a therapeutic measure, is very efficient in the treatment of endocrine disorders; the ultraviolet rays stimulate hypo-active endocrines, thus bringing about functional reeducation of these glands toward the normal level." This would be wonderful, helpful and of the greatest importance, if true. The reader may remember that similar claims of overcoming endocrine hypofunction by roentgen therapy have been made but certainly not yet proved. The same applies to the views of Dr. Zalewsky. To the extent that one worker is today able to treat the whole field of endocrine disorders, Dr. Porak has done fairly well; but the volume cannot be considered as a significant contribution in the field of endocrine disorders.

PATHOGENIC MICROÖRGANISMS. A Practical Manual for Students, Physicians and Health Officers. By William Hallock Park, M.D., Professor of Bacteriology and Hygiene, University and Bellevue Hospital Medical College, New York City, Anna Wessels Williams, M.D., Assistant Director of the Bureau of Laboratories of the Department of Health, and Charles Krumwiede, M.D., Associate Professor of Bacteriology and Hygiene in the University and Bellevue Hospital Medical College, New York City. Ninth edition. Cloth. Price, $6.50 net. Pp. 819, with 225 illustrations. Philadelphia: Lea & Febiger, 1929.

The fact that this volume is now in its ninth edition and the ability of its authors to keep it quite up to date through repeated editions is sufficient evidence of its quality. Here is a complete and practical textbook in the field of bacteriology, carrying the user from the history of the subject, through experimentation, immunology, classification of organisms and modern methods. The book is profusely illustrated, supplemented by outlines and charts and much usable material. The reader may continue to rely on this book.

DIE KLINISCHE UND RÖNTGENOLOGISCHE UNTERSUCHUNG DER LUNGENKRANKEN. Altes und Neues zur Diagnostik und Symptomatologie der Lungenkrankheiten, unter besonderer Berücksichtigung der Lungentuberkulose. Von Dr. Hans Philippi, Facharzt für Krankenheiten der Respirationsorgane in Basel. Cloth. Price, 6.50 marks. Pp. 119. Munich: J. F. Lehmanns Verlag, 1929.

The title is a misnomer; little except pulmonary tuberculosis is considered. The volume is made up largely of a recital of the symptoms and signs, including the roentgenographic observations, of tuberculosis of the lungs. The criticism to be made is that the various symptoms and signs are merely listed. There is no discriminating estimate of their comparative value as aids in diagnosis. Furthermore, most of these are the old well known facts fully considered in every good textbook on this subject. Here and there a point is made by the author that would be of interest to the expert in tuberculosis. The undergraduate and the general practitioner, however, will not profit by reading these pages. There are only three illustrations. Others in connection with physical diagnosis and the roentgen examination would be helpful.

AIDS TO PHARMACEUTICAL LATIN. By G. E. Trease, Ph.C., Lecturer in Pharmacognosy, University College, Nottingham. Cloth. Price, $1.50. Pp. 168. New York: William Wood & Company, 1929.

The object of this little book is to place in the hands of pharmaceutic and medical students a concise introduction to Latin, suitable even for one who has had no previous acquaintance with a study of this language. While it no doubt well serves the purpose for which it has been devised, one cannot help feeling sorry for the student who has to sacrifice time and energy to acquire the rudiments of a language merely as a help in writing and interpreting prescriptions that might as well and perhaps better have been written in English.

ERGEBNISSE DER SOZIALEN HYGIENE UND GESUNDHEITSFÜRSORGE. Band I. Herausgegeben von Professor Dr. A. Grotjahn, o. Professor der Sozialen Hygiene an der Universität Berlin; Professor Dr. L. Langstein, a. o. Professor der Kinderheilkunde an der Universität Berlin, und Professor Dr. F. Rott, Privatdozent f. Soziale Hygiene an der Universität Berlin. Paper. Price, 30 marks. Pp. 440, with 31 illustrations. Leipzig: Georg Thieme, 1929.

It is unfortunate that the good expression social hygiene has become generally limited in this country to questions concerning venereal diseases. As well known, it is used in Germany and other countries in the much broader sense of community hygiene. This publication contains articles on fertility and infant mortality in the various districts of Berlin, on rickets, on school dental service, on the theoretical program of social hygiene and on other important topics, each by a specialist in his field. Béla Schick's article on protective inoculation against diphtheria in the United States will be of especial interest to many American readers, drawing appreciatively as it does on recent experience in this country. If the promise of the first volume is maintained, this will be a welcome addition to the list of ergebnisse.

Medicolegal

Imputation of Tuberculosis Actionable

(Kirby v. Smith (S. D.), 224 N. W. 230)

The appellant complained that the appellee, in conversation with numerous persons, said that the appellant was afflicted with tuberculosis and thereby imputed to her an infectious and contagious disease, and that the appellant was physically unfit to be employed in any capacity in the city wherein she resided and where she must meet and deal with the public, and that her condition of health was such that any person dealing with her or transacting any business or coming in contact with her was likely to become afflicted with said infectious and contagious disease. All of these statements, the appellant said, were false and unprivileged and were published and uttered with the intent of injuring her. The trial court sustained an objection to the introduction of any evidence, directed a verdict for the appellee, and entered judgment dismissing the action. The appellant thereupon appealed to the supreme court of South Dakota. The appellant contended that the words spoken were slanderous within the meaning of section 98 of the Revised Code of South Dakota, which defines slander as a false and unprivileged publication (other than libel, a written publication), which imputes to a person the present existence of an infectious, contagious or loathsome disease and tends directly to injure him in respect to his office, profession, trade or business, either by imputing to him general disqualifications in those respects which the office or other occupation peculiarly requires, or by imputing something with reference to his office, profession, trade or business that has a natural tendency to lessen its profit. Most of the reported cases in which complaints of slander were based on the imputation of disease impute a venereal disease and come from jurisdictions where the common law definition of contagious and loathsome disease prevails. The definition is not restricted, however, to imputation of venereal diseases alone, as is attested by the fact that accusations that the plaintiff is afflicted with leprosy have been held slanderous. The court quoted with approval *Williams* v. *Holdredge*, 22 Barb. (N. Y.), 396:

> Man being formed for society, and standing in almost constant need of the advice, comfort and assistance of his fellow creatures, it is highly reasonable that any words which import the charge of having a contagious distemper should be in themselves actionable, because all prudent persons will avoid the company of a person having such distemper. It makes no difference whether the disease be owing to the visitation of God, to accident or to the indiscretion of the party therewith afflicted, for in every one of the cases the being avoided, from which the damage arises, is the consequence, and upon this the action is predicated.

The court below erred in sustaining the objection to the introduction of evidence and entering judgment upon a directed verdict for the defendant, and the judgment appealed from was therefore reversed.

Liability for Consequences of Forcible Hospitalization of Patient

(Meek v. City of Loveland et al. (Colo.), 276 P. 30)

The plaintiff, Meek, was shot in the knee by a police officer of the city of Loveland, Feb. 5, 1922. He was taken from the jail to the city hospital, where Dr. Wright, the city physician, removed the bullet. Then he was taken to his home. A few days later Dr. Wright and the chief of police took Meek from his home—against his will, it was alleged—to the county poor farm hospital. There Dr. Taylor amputated Meek's leg about nine inches above the knee. The plaintiff alleged that the operation was negligently performed, that he was negligently treated by Dr. Taylor after the operation, and that the defendants conspired to imprison him in the county poor farm hospital, on the pretext that he had violated the law, so as to conceal certain acts of the defendants and to protect the city from liability for such acts. No criminal charge was filed against him, however, until March 30, 1922, the day before he left the county poor farm hospital, and on those charges the plaintiff was never brought to trial. Meek entered suit against the city; its mayor; Ross E. Wright, the city physician; the chief of police; the police officer who shot him, and T. C. Taylor, the county physician of Larimer County. The mayor and the police officer died before the trial and the case was dismissed as to them. Judgment was given in favor of the remaining defendants, and Meek appealed to the supreme court of Colorado.

Dr. Wright and the chief of police contended that they could not reasonably have anticipated that the defendant Taylor, the county physician, would be negligent in amputating the plaintiff's leg and in treating the plaintiff after the amputation and that such negligence was not the proximate result of their sending the plaintiff to the hospital, and that therefore they could not be held liable. But, said the court, when a city physician and a chief of police act in the manner described in the testimony they do so at their peril. When they caused the plaintiff to be taken by force to the county poor farm hospital, they knew that he was seriously wounded and must receive treatment at the hands of the defendant, Dr. Taylor. The jury might be warranted in finding even that Dr. Wright and the chief of police knew that an amputation, if not certain, was at least probable. They should not be permitted to avoid liability on the theory that they could not reasonably have been held to anticipate that the defendant Taylor would act in a negligent manner. Their liability does not depend on the existence of any conspiracy between them and the defendant Taylor; the charge of conspiracy may be considered as surplusage. The trial court erred in sustaining motions by the defendants Dr. Wright and the chief of police for a dismissal of the case as to them. They are liable for the defendant Taylor's negligence on the theory that the injury suffered by reason thereof was the proximate result of their act in forcibly sending the plaintiff to the county poor farm hospital and thereby subjecting him against his will to medical and surgical treatment by Taylor. The judgment of the trial court was reversed, and the case was remanded for further proceedings in harmony with the decision of the supreme court.

Void Prescription of Physician No Defense for Possession of Intoxicating Liquor.—Stell obtained liquor on a physician's prescription which did not state, as is required by section 6592, Revised Statutes of Missouri, 1919, the malady for which the liquor was prescribed. He was convicted of unlawful possession. The fact that he obtained the liquor on a prescription was held to be no defense, since the prescription was void.—*State v. Stell (Mo.), 14 S. W. (2d) 515.*

Health Insurance: "Confinement to House" Clause Construed.—Sickness benefits were payable when "the insured shall be continuously confined within the house, not leaving it at any time for any purpose whatsoever, and regularly visited therein at least once in every seven days by a licensed physician and be wholly prevented from transacting any and every kind of business." This language is without ambiguity and there is no room for construction. Unequivocal language is to be given its plain meaning, even in an insurance contract. When the court of appeals gave a liberal construction to the words "continuously confined within the house" and held that it was sufficient that the plaintiff was confined to the house "in a substantial sense," it erred by applying to the unequivocal language of this policy the rules of construction ordinarily applicable to ambiguous language or contradictory provisions.—*State ex rel. Commonwealth Casualty Co. v. Cox et al. Judges (Mo.), 14 S. W. (2d) 600.*

Society Proceedings

COMING MEETINGS

American Academy of Physical Therapy, Philadelphia, December 5-6. Dr. Thomas L. Smyth, 111 North Eighth Street, Allentown, Pa., Sec'y.
American Society of Tropical Medicine, Miami, Fla., November 20-22. Dr. Edwin Peterson, U. S. Naval Hospital, Washington, D. C., Sec'y.
Radiological Society of North America, Toronto, December 2-6. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Acting Secretary.
Society of American Bacteriologists, Ames, Iowa, December 30-January 1. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.
Southern Medical Association, Miami, Fla., November 20-22. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.
Southern Surgical Association, Atlanta, Ga., December 10-12. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.
Western Surgical Association, Del Monte, Calif., December 12-14. Dr. Frank R. Teachenor, 306 E. Twelfth St., Kansas City, Mo., Secretary.

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Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

5: 1-128 (Oct.) 1929

Objects of Digitalis Therapy. H. J. Stewart, New York.—p. 1.
*Nervous Heart. E. S. Kilgore, San Francisco.—p. 9.
T-Wave Negativity in Predominant Ventricular Strain. A. R. Barnes and M. B. Whitten, Rochester, Minn.—p. 14.
*Electrocardiogram in Pericardial Effusion: I. Clinical. R. W. Scott, H. S. Feil and L. N. Katz, Cleveland.—p. 68.
*Id.: II. Experimental. L. N. Katz, H. S. Feil and R. W. Scott, Cleveland.—p. 77.
*Abnormal Electrocardiograms in Patients with Syphilitic Aortitis. I. R. Juster and H. E. B. Pardee, New York.—p. 84.
*Syphilitic Coronary Occlusion in Aortic Insufficiency. J. H. Cannon, Charleston, S. C.—p. 93.
*Incidence of Heart Disease in Pacific Northwest. T. H. Coffen, Portland, Ore.—p. 99.
*Sinus Arrhythmia: Case. F. C. Wood, Philadelphia.—p. 104.
Electrocardiographic Electrodes. R. W. Kissane, Columbus, Ohio.—p. 113.

Nervous Heart.—Kilgore applies this term to a group of disturbances in the efferent or afferent (often both) nerves of the heart, caused in many ways, and of which the essential feature in most instances is an anxiety neurosis of greater or lesser severity. The efferent disturbances affect the frequency or force of the heart action, the afferent result in heightened perception of the heart action, pain or other abnormal sensation. The two phenomena commonly occur together through interaction with the mind. For example, there may be increased heart action resulting in increased afferent stimuli and hence mental disturbances; or heightened heart consciousness may cause mental disquietude and thence increased heart action; or fear may initiate the vicious circle. Nervous heart symptoms include many of those of organic heart disease. Heightened consciousness of heart action is most prominent. Often associated with heart consciousness is the symptom of position aversion. Cardioneurotic patients object most often to lying on the left side, sometimes the right side or either side or occasionally the back. That this position aversion as well as heart consciousness in general is a sensory phenomenon rather than due primarily to change in cardiodynamics is suggested by the fact that so many patients with crippled or very large hearts do not show it. Precordial pain is common. It is usually a dull ache, sore feeling, burning sensation, or a lancinating pain. These pains rarely have any close relation to effort, excitement and meals. They may radiate to the left arm or elsewhere. Other common symptoms are the group associated with the effort syndrome: easy fatigue, breathlessness with slight effort (sometimes failure to obtain satisfaction from a deep breath, without exercise), increased sweating, especially of the axillae and hands, faintness, tachycardia, and cool, moist and often cyanotic extremities. Treatment is first of all prophylactic. For some of the established cases of neurosis, technical psychotherapeutic methods in the hands of experts may be needed. But these are few compared with the great numbers of mild cases, in which simple encouragement and a suitable regimen, usually involving gradual resumption of activities, are sufficient.

Electrocardiogram in Pericardial Effusion: Clinical.—Electrocardiograms from a case of hemopericardium and a case of purulent pericarditis with effusion recorded by Scott et al. exhibit R-T deviations similar to those seen in recent myocardial infarction. These changes are ascribed to increased hydrostatic pressure in the pericardial sac which probably causes anoxemia of the heart muscle. Observations on a patient with rheumatic carditis showing abnormal ventricular complexes are included. In the interpretation of R-T deviation in rheumatic heart disease, the presence of pericardial effusion must be considered. The suggestion is made that, since the R-T deviation observed in coronary thrombosis occurs also in pericardial effusion, the term "coronary T-wave" is a misleading one and should therefore be discarded.

Id.: Experimental.—The effect of acute experimental effusion on the electrocardiogram was studied by Katz et al. in normal dogs to ascertain whether changes would occur similar to those observed by them in clinical cases. Three general types of abnormal ventricular complexes are classified. In all types the Q-R-S complex becomes smaller in voltage. The groups differ in regard to the modification of the S-T segment and the T-waves. The hypothesis is suggested that the changes in the ventricular complexes of the electrocardiogram in experimental pericardial effusion are caused by anoxemia of the heart muscle, which is more marked in certain regions of the left ventricle, leading to intraventricular block and diminished electrical response in the involved regions.

Abnormal Electrocardiograms in Patients with Syphilitic Aortitis.—Of fifty patients with syphilitic aortitis studied by Juster and Pardee, two thirds had aortic insufficiency and one third did not; about one third had aneurysm; five had both aortic insufficiency and aneurysm. In general the patients with aortic insufficiency were older than those without; shortness of breath was their chief complaint, though pain in the anterior part of the chest was frequent, and almost one third complained of edema. All but one showed a systolic murmur at the aortic area. The electrocardiogram showed an abnormal T-wave in 85 per cent of these patients, and in 20 per cent it was of the "coronary" type. It was abnormal in only 38 per cent of those without the valve lesion, and only one case (7 per cent) showed a wave of the "coronary" type. Ten necropsies were obtained on these fifty cases, and from a study of the necropsy material and the electrocardiographic records it appeared that the abnormality of the T-wave is probably due to encroachment on the lumen of the coronary orifices by the syphilitic disease in the sinuses of Valsalva. The greater frequency of the T-wave changes in the group with aortic insufficiency is due to the fact that in these patients the aortitis involves the region of the valves near which the coronary arteries originate. Changes in the T-wave of patients with syphilitic aortitis should be viewed as an indication of serious coronary involvement, but not necessarily as an indication of myocardial disease.

Syphilitic Coronary Occlusion in Aortic Insufficiency.—Two cases of syphilitic aortitis with insufficiency and occlusion of a main branch of a coronary artery are reported by Cannon. The striking similarity of the cases is commented on, and statistics from analysis of a small series of cases are utilized. It would seem that, in young adults with syphilis and aortic insufficiency who do not exhibit the usual compensatory hypertrophy and whose progress is rapidly toward a fatal outcome, one may reasonably presume the involvement of one or more of the coronary openings in the syphilitic process.

Incidence of Heart Disease in Pacific Northwest.—Coffen asserts that, in the Pacific Northwest, heart disease shows a low incidence of acute rheumatic fever (0.1 per cent). Hypertensive cardiovascular disease is the most frequent of all types (56 per cent). Goiter, being endemic, shows an incidence of 6.1 per cent of medical patients, producing cardiovascular symptoms severe enough to send the patient to the physician.

Sinus Arrhythmia.—A case is reported by Wood in which, under normal respiratory conditions, retardation of the heart occurred with each second respiration.

American J. Dis. of Children, Chicago

38: 683-904 (Oct.) 1929

*Experimental Production of Abscess of Lung. E. C. Cutler, Cleveland.—p. 683.
*Digitalis Studies on Children with Heart Disease. S. P. Schwartz, New York, and M. M. Weiss, Louisville, Ky.—p. 699.
*Frequency of Atrophy of Subcutaneous Fat Following Injection of Insulin. A. E. Fischer, New York.—p. 715.
Dietary Control of Dental Caries. J. D. Boyd, C. L. Drain and M. V. Nelson, Iowa City.—p. 721.
*Blood Cultures After Tonsillectomy. M. I. Rubin, I. M. Epstein and M. Werner, Chicago.—p. 726.

*Determination of Value of Serum in Treatment for Meningococcus Meningitis. I. S. Wright, A. G. De Sanctis and A. Sheplar, New York.—p. 730.
*Infantile Pyloric Obstruction. M. B. Cohen and J. Breitbart, Cleveland. p. 741.
*Spontaneous Hypoglycemia in Childhood: Four Cases. H. Josephs, Baltimore.—p. 746.
Weight Range Table for Children from 5 to 15 Years of Age. H. K. Faber, San Francisco.—p. 758.
*Bacteremia and Skin Manifestations in Lipoid Nephrosis. H. Schwarz and J. L. Kohn, New York.—p. 762.
Gaucher's Disease. S. J. Hoffman and M. I. Makler, Chicago.—p. 775.
*Suppurative Epididymitis in Infancy. M. F. Campbell, New York.—p. 794.
Horseshoe Kidney. M. G. Peterman and A. de la Pena, Milwaukee.—p. 799.
Congenital Valves of Posterior Urethra. H. L. Kretschmer and L. E. Pierson, Chicago.—p. 804.
*Intestinal Pneumatosis. R. A. Moore, Cleveland.—p. 818.
Mental Hygiene from Pediatric Standpoint. E. J. Huenekens, Minneapolis.—p. 824.
Pathogenesis of Acute Serofibrinous Pleurisy. A. Wallgren, Gothenburg, Sweden.—p. 829.
Wolfgang Hoefer 1614-1681. J. Ruhräh, Baltimore.—p. 834.

Experimental Production of Abscess of Lung.—In Cutler's experience, the surest way to produce an experimental abscess is by the use of an infected embolus. If the immunity factors are controlled, free infected autogenous clots will give this result. The insufflation and aspiration of bacteria, anaerobic or aerobic, freshly obtained from the gums of persons with pyorrhea or from an abscess cavity, and even the mechanical placement by way of a bronchoscope of such bacteria and material, will not produce abscess of the lung unless there is complete bronchial obstruction, with subsequent atelectasis and anaerobiasis. Aspiration of buccal contents is a usual occurrence in patients submitted to general anesthesia and is probably of frequent occurrence in conscious persons. With these criteria we must deduce that the simple aspiration of buccal contents does little harm; yet in most cases of pulmonary abscess in human beings the mouth organisms are found. He proposes that embolism from a septic field produces the original lesion and that it becomes a chronic abscess only when secondarily infected by the ever present mechanism of aspiration. It may even be that in operations about the mouth these anaerobic organisms are actually included in the thrombi.

Digitalis Studies on Children with Heart Disease.—The results obtained by Schwartz and Weiss from the administration of a single body-weight dose of digitalis to twenty-four children with chronic rheumatic valvular heart disease and signs of heart failure reveal that the use of the drug by this method is a safe procedure in children exhibiting sinus rhythm or an irregular ventricular rate due to auricular fibrillation. There were no untoward symptoms from the administration of the drug in a single dose of this type provided it was well diluted with water. The changes induced by the drug were recorded in twelve of eighteen children with sinus rhythm and in five children with auricular fibrillation who were studied during both the active and the inactive phases of rheumatic fever. Moreover, in six of the eighteen children no electrocardiographic signs of digitalis action were observed. The alterations produced by digitalis on the electrocardiograms of these children consist essentially of a lowering of the S-T segment below the iso-electric line with final progressive increases in the negativity of the T wave in one or more of the leads in which it was previously upright. In two children, a previously negative T wave in lead III eventually became positive. These changes varied in their appearance from child to child and in the same child from time to time when the experiments were repeated. The alterations produced by digitalis on the electrocardiograms of children with rheumatic valvular heart disease and signs of heart failure are also variable. They may last from a minimum of seven days to a maximum of thirty-seven days. A body-weight dose of digitalis produced a transitory slowing of the sinus rate of between 10 and 15 beats per minute in twelve children with sinus rhythm. The same dose administered to children with auricular fibrillation at a time when there were no evidences of active carditis and when they were responsive to the drug reduced a ventricular rate from an average of 157 beats a minute to 60 beats within twenty-four hours. In the latter group there was a definite relationship between the slowing of the ventricular rate and the relief of the dyspnea. In one child, the administration of a body-weight dose of digitalis augmented the size of the P-R interval during an attack of rheumatic fever. The inconstancy and variability of the appearance and duration of the changes induced by body-weight doses of digitalis on the S-T interval and T waves of the electrocardiograms of children with rheumatic valvular heart disease and signs of heart failure make this method of studying the dosage of digitalis in children totally inadequate. For similar reasons the effects of digitalis on the electrocardiograms of children cannot be taken as criteria in measuring the standardization of the drug, its rate of absorption and elimination or the daily amount necessary to maintain its persistent effects, known as the maintenance dose.

Frequency of Atrophy of Subcutaneous Fat Following Injection of Insulin.—Careful examination made by Fischer of twenty-four diabetic children who had been receiving insulin for more than six months revealed that sixteen had a local lipodystrophy about the site of the injections of insulin. The cause of the disappearance of the fat is not apparent from the evidence at hand.

Blood Cultures After Tonsillectomy.—Blood cultures were taken by Rubin et al. from seventy-eight selected patients following tonsillectomy. All patients showed evidences of recent infections of the throat. Positive blood cultures were not obtained in any case.

Determination of Value of Serum in Treatment for Meningococcus Meningitis.—Wright et al. state that when a patient with meningococcus meningitis fails to respond to treatment, one cannot justifiably conclude that the strain of organism encountered is resistant to serum therapy, but only that the serum used is not specific for that organism. It is necessary then to seek an effective serum. A single intraspinal injection of 20 cc. of an effective antimeningococcus serum in each twenty-four hours was therapeutically adequate. Potency of the serum rather than frequency of injections proved to be the essential factor for successful treatment. The quantity of serum administered should, in general, be less by at least 3 or 4 cc. than the quantity of spinal fluid withdrawn. Antimeningococcus serum should be administered cisternally when there is evidence of blockage in the spinal canal. With correct technic this is not an especially hazardous procedure.

Infantile Pyloric Obstruction.—Evidence is presented by Cohen and Breitbart showing that infantile pyloric obstruction may be an allergic phenomenon. The pathologic condition in infantile pyloric obstruction is probably identical with that in allergy. Evidences of allergy are present in the majority of cases of infantile pyloric obstruction. Depending on the period in life at which sensitization occurs and the frequency and severity of the shock reactions, there may be pylorospasm with or without organic obstruction.

Spontaneous Hypoglycemia in Childhood.—Josephs reports four cases in which hypoglycemia of greater or less degree was found. These cases were characterized by attacks in which there occurred somnolence often verging on complete coma, ketosis, vomiting and convulsions. In about half the cases, the attacks tended to recur. Two of the attacks were fatal, and at necropsy the liver was found to be the seat of extensive fatty change. The clinical syndrome associated with the hypoglycemia has been the one usually associated with the term "recurrent vomiting." In all the reported fatal cases there was marked fatty change, especially in the liver.

Bacteremia and Skin Manifestations in Lipoid Nephrosis.—Nine cases of clinically typical lipoid nephrosis in children were studied by Schwarz and Kohn. Bacteria were found in the blood stream, in the ascitic fluid and in lesions of the skin.

Suppurative Epididymitis in Infancy.—Campbell's patient was only 22 months old. The epididymitis in this case was secondary to an acute prostatitis. He surmises that the organisms (staphylococci) may have reached the prostate directly through the blood stream or may have lodged there following their elimination into the urine from the kidney. The most likely primary bacterial focus was the severely infected tonsils. The etiologic, pathologic, symptomatic, diagnostic and therapeutic phases of the disease as it occurs in infants and adults are similar in all respects. Elevation and support of the scrotal contents are the indicated palliative treatment.

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Intestinal Pneumatosis.—Four cases of intestinal pneumatosis in infants are reported by Moore. The pathologic picture is the presence of gas in endothelial lined cysts of the intestinal wall with a chronic productive inflammation in the surrounding tissue. The gas is derived from the intestinal lumen and enters the wall by a mechanical process through an ulceration in the mucosa.

Archives of Dermatol. & Syphilology, Chicago

20: 431-592 (Oct.) 1929

Bismuth and Neoarsphenamine in Syphilis. J. F. Schamberg, Philadelphia.—p. 431.
Experimental Sporotrichosis. B. Kesten and H. Martenstein, Breslau, Germany.—p. 441.
Erythema Palmare Hereditarium (Red Palms): Two Cases. J. E. Lane, New Haven, Conn.—p. 445.
Lichen Scrofulosorum. J. Skeer, New York.—p. 449.
Perleche. C. W. Finnerud, Chicago.—p. 454.
Lipid Studies in Xanthoma. U. J. Wile, H. C. Eckstein and A. C. Curtis, Ann Arbor, Mich.—p. 489.
Eczema Solare in Case of Hematoporphyrinuria. W. H. Goeckerman, A. E. Osterberg and C. Sheard, Rochester, Minn.—p. 501.
Jean Louis Alibert, the Clinician, 1766-1837. D. W. Montgomery, San Francisco.—p. 506.

Archives of Neurol. & Psychiatry, Chicago

22: 647-864 (Oct.) 1929

Encephalomyelitis Disseminata: Two Cases. W. G. Spiller, Philadelphia.—p. 647.
*Extensor Reflexes from Knee in Relation to Knee Jerk and to Rebound. G. P. McCouch and B. J. Alpers, Philadelphia.—p. 672.
Cerebral Circulation: XIa. Action of Acetylcholine. H. G. Wolff, Boston.—p. 686.
Id.: XIb. Action of Extract of Posterior Lobe of Pituitary Gland. H. G. Wolff, Boston.—p. 691.
Id.: XIc. Action of Amyl Nitrite. H. G. Wolff, Boston.—p. 695.
*Hyperpyrexia Produced by Baths. H. G. Mehrtens and P. S. Pouppirt, San Francisco.—p. 700.
Incipient Parkinsonism. A. M. Ornsteen, Philadelphia.—p. 709.
Habitus Lipodystrophicus with Affective Psychosis (Hypomanic Excitement). F. I. Wertham, Baltimore.—p. 714.
Psychogalvanic Studies on Affective Variations in Mentally Diseased. E. M. Westburgh, Philadelphia.—p. 719.
*Apparatus for Induction of Muscular Relaxation and Sleep. J. Rosett, New York.—p. 737.
Nervous and Mental Phenomena Accompanying Insulin Therapy. E. L. Sevringhaus, Madison, Wis.—p. 746.
*Malaria as Therapeutic Agent for Paresis. C. DeAsis, Worcester, Mass.—p. 752.
Etiology of Epidemic Encephalitis. C. Levaditi, Paris, France.—p. 767.

Extensor Reflexes from Knee in Relation to Knee Jerk and to Rebound.—Evidence is presented by McCouch and Alpers of the existence of an ipsilateral extension reflex which may be elicited from the subpatellar bursa by either mechanical or electrical stimulation. It is suggested that this reflex may contribute to the knee jerk as tested clinically and that impairment of this component may alter the response to a degree which may lead to errors in diagnosis. Evidence is presented which suggests that the reflex is concerned in the production of rebound. Extensor reflexes elicited from the internal saphenous nerve above the branches to the knee approximate more closely to those described by other observers from stimulation of the sciatic nerve. The presence of the rhythm of stimulation in these records is ascribed to the presence of afferents of the flexion reflex, which are believed to inhibit repetitive discharge of the center.

Hyperpyrexia Produced by Baths.—In comparing the results produced by hot baths and the malarial treatment, Mehrtens and Pouppirt have reached the conclusion that the latter is simpler. It requires less cooperation on the part of the patient. The temperature can be maintained for several hours out of the twenty-four. There may be valuable factors in the toxemia apart from the fever. Fever produced by baths is under perfect control. It can be maintained at any degree or for any length of time up to two hours; it may be applied on alternate days or even on every third day if necessary. Baths may be continued daily for at least six weeks and the patient may still gain in weight and maintain his strength. They may be applied along with antisyphilitic therapy; it is even probable that the hyperpyrexia tends to intensify the therapeutic effect of the antisyphilitic medication. Neurosyphilis seems to offer the most favorable field for treatment by hyperpyrexia. The results compare well with those obtained by malaria therapy. Frequent amelioration of individual symptoms was obtained in Parkinson's syndrome following encephalitis, as well as in combined sclerosis. Pain resulting from minor disturbances in muscle, nerve and joints proved especially amenable to treatment by heat. No results were obtained in amyotrophic lateral sclerosis.

Apparatus for Induction of Muscular Relaxation and Sleep.—An apparatus is described by Rosett the action of which consists in a wave of encircling pressure applied to the periphery of the body and the limbs in the direction of the venous flow. The most striking and uniform effect is muscular relaxation and, in most persons, sleep. These are ascribable to a physiologic state of nerve inhibition. But the manner in which the wave of circular compression exercised on the periphery affects the nervous system so as to cause a general state of nerve inhibition is not yet understood. Subjected to the action of the apparatus a number of times, persons appear to contract the habit of relaxation. They rest better at night and they go about their business or pleasure, as the case might be, in a more deliberate and systematic manner. Whether as a result of this, or perhaps in consequence of the direct action of the apparatus in driving onward the contents of the peripheral veins and lymphatics, the general nutrition is enhanced. Since the most obvious action of the apparatus is the induction of a general state of nerve inhibition, Rosett feels that it is reasonable to conclude that instances of hypertension reducible by means of the apparatus are due to supernormal neural impulses acting on the musculature of the arterioles. By the same token the conclusion is reasonable that hypertension not affected by the action of the apparatus is due to a permanent change in the tissue of the arterioles, and instances reducible at certain times and not reducible at others are due neither to strong neural impulses nor to a permanent pathologic change but to certain substances the occasional presence of which in the blood acts directly on the musculature of the arterioles.

Malaria as Therapeutic Agent for Paresis.—DeAsis finds malaria of great value as a therapeutic agent in paresis. He analyzes the results in 101 cases. It has caused a marked improvement, resulting in a visit home or discharge in about 33 per cent, and a limited improvement in about 16 per cent of the patients treated. Of the group now at home on a visit or discharged, 70 per cent are working steadily.

California & Western Medicine, San Francisco

31: 233-304 (Oct.) 1929

Circulatory Disturbances of Extremities. F. L. Reichert, San Francisco.—p. 233.
Pulmonary Tuberculosis: Nonapical Infiltrations. K. Fischel, Los Angeles.—p. 237.
Combating Congenital Syphilis. L. B. Dickey and T. L. Sutton, San Francisco.—p. 242.
Roentgen Ray in Diagnosis of Primary Carcinoma of Lung. B. K. Kirklin, Rochester, Minn.—p. 247.
Physiologic and Pathologic Significance of Lipochromes. C. L. Connor, San Francisco.—p. 250.
Monocular Occlusion in Apparently Orthophoric Emmetropes. R. O'Connor, Oakland.—p. 253.
Treatment of Fractures. L. Eloesser and W. L. Rogers, San Francisco.—p. 254.
Goiter Operations in Mental Diseases. G. H. Sanderson and M. Smyth, Stockton.—p. 255.
Inversion of Uterus. E. N. Ewer, Oakland.—p. 259.
Interstitial Cystitis. A. Peterson and B. H. Hager, Los Angeles.—p. 262.
Anesthesia in Smaller Communities. R. G. Henderson, Long Beach.—p. 267.
Toti-Mosher Operation in Obstruction of Nasolacrimal Duct. R. C. Martin and F. C. Cordes, San Francisco.—p. 268.
Pulmonary Tuberculosis in Infants and Young Children: Clinical Diagnosis. W. M. Happ, Los Angeles.—p. 271.
Lure of Medical History: Medical Terminology. E. H. Olmsted, Berkeley.—p. 274.
Vagitus Uterinus: Case. L. Peters, Alameda.—p. 278.
Coccidioidal Granuloma: Treatment with Thymol: Case. A. B. Stockton, San Francisco.—p. 278.
Complete Obstruction of Esophagus Due to Bolus of Food: Case. R. S. Tillotson, Woodland.—p. 280.

Canadian M. Assn. Journal, Toronto

21: 367-490 (Oct.) 1929

Duty of Doctor to Hospital. H. H. Murphy, Kamloops, B. C.—p. 368.
Industrial Hygiene and Medical Profession. W. Wright, New York.—p. 373.
Differential Diagnosis of Clinical Conditions Accompanied by Jaundice. D. Graham, Toronto.—p. 380.
Late Toxemias of Pregnancy. R. Mitchell, Winnipeg.—p. 384.

Gastric and Duodenal Ulcer. B. Mooney, Edmonton, Alta.—p. 387.
Acute Appendix. O. W. Niemeier, Hamilton.—p. 390.
Pedunculated Cardiac Thrombosis Accompanied by an Aortic, Renal and Mesenteric Thrombosis: Case. C. W. Fullerton, Baltimore.—p. 394.
Series of Ureteral Calculi Treated by Manipulation. W. P. Hogarth, Fort William, Ont.—p. 400.
Trois Années D'Expérience a la Crèche D'Youville de Montréal. D. Longpré, Montreal.—p. 405.
Advantages of Preliminary Examination and Preparation of Surgical Patient. F. W. Leech, Toronto.—p. 415.
Modern Conception of Dermatology and Syphilology. G. Archambault and A. Marin, Montreal.—p. 419.
Congenital Hypertrophic Pyloric Stenosis in Man, Aged Seventy-Two: Case. F. D. Ackman, Montreal.—p. 423.
Fibromyoma of Fallopian Tube with Tuberculosis: Case. E. Percival, Montreal.—p. 426.
Volvulus of Stomach with Congenital Anomalies of Development: Case. J. A. Gorrell, Winnipeg.—p. 427.

Delaware State M. Journal, Wilmington

1: 149-174 (Sept.) 1929

Perforation of Colon by Fish Bone. W. E. Bird, Wilmington.—p. 153.
Treatment of Bronchial Asthma and Hay-Fever. H. B. Wilmer, Philadelphia.—p. 156. (C'cn. from Aug. issue.)

Georgia M. Assn. Journal, Atlanta

18: 444-494 (Oct.) 1929

*Report of Six Years' Study of Intraperitoneal Use of Neoarsphenamine and Mercurosal in Congenital Syphilis. J. Yampolsky, Atlanta.—p. 444.
Increasing Importance of Undulant Fever. E. A. Bancker, Jr., Atlanta. —p. 448.
Agranulocytosis: Two Cases. J. D. Gray, Augusta.—p. 458.
Epilepsies. W. A. Smith, Atlanta.—p. 464.

Intraperitoneal Use of Neoarsphenamine and Mercurosal in Congenital Syphilis.—Twenty cases of congenital syphilis treated by intraperitoneal methods are reported by Yampolsky. The patients received neoarsphenamine and mercurosal intraperitoneally. Only four of these cases present a positive Wassermann reaction after treatment, but none show any signs of congenital syphilis. These medications did not cause discomfort, death, peritonitis or adhesions, as shown by the necropsies on the rabbits and roentgen examination of the patients. The patients are alive and feel well. The method is simple, requires only sterile instruments, and does not give rise to fear of doing any harm to the patient. Absorption is rapid from the peritoneal cavity and the results are just as quick as when these medications are used intravenously.

Illinois Medical Journal, Oak Park

56: 233-308 (Oct.) 1929

Backache, Roentgenologically Considered. M. J. Hubeny, Chicago.—p. 245.
State Medicine. C. B. Reed, Chicago.—p. 247.
Prevention and Treatment of Measles. A. Hoyne, Chicago.—p. 254.
Lay Comment on "Public Health Institute" Insists that Overadvertised Scheme "Discredits Chicago, Doctors and Citizens and is Menace to Health and Integrity." B. Point, Chicago.—p. 258.
Histology and Pathology of Zonula: Clinical Significance in Cataract Operation. R. Castroviejo, Chicago.—p. 261.
Suction Tonsillectomy. J. B. H. Waring, Cincinnati.—p. 264.
Basic Science Statutes. H. E. Kelly, Chicago.—p. 270.
County Medical Society. A. Hall, Mount Vernon.—p. 280.
Attitude of Present Day Medical School in Matter of Education of Young Doctor. L. D. Moorhead, Chicago.—p. 283.
We Physicians and Our Sick. W. VanHook, Chicago.—p. 289.
Cardiospasm (Esophagus). M. H. Streicher, Chicago.—p. 290.
Toxemias in Pregnancy. F. H. Falls, Chicago.—p. 292.
Carcinoma of Lung. W. C. Haeper, Chicago.—p. 296.

Iowa State M. Soc. Journal, Des Moines

19: 437-476 (Oct.) 1929

Kidney Infections in Childhood from Pediatric Viewpoint. P. C. Jeans, Iowa City.—p. 437.
Kidney Infections in Childhood from Genito-Urinary Viewpoint. L. D. Jay, Waverly.—p. 440.
Kidney Infections in Childhood from Eye, Ear, Nose and Throat Viewpoint. G. F. Harkness, Davenport.—p. 444.
*Schoolsickness. J. V. Treynor, Council Bluffs.—p. 451.
Present Status of Serum Therapy in Scarlet Fever. L. F. Hill, Des Moines.—p. 453.
Public Health Laboratory Function and Relation to Clinical Laboratories. F. P. McNamara, Dubuque.—p. 458.

Schoolsickness.—In "schoolsickness" Treynor has coined a name to describe a condition which he feels is becoming more and more a specific problem for the man who is working with children. "Schoolsickness" is characterized by nervousness, which is manifested in anxiety, restlessness, irritability and a highly emotional state. The child usually has a poor appetite. He sleeps poorly and may be subject to night terrors. He is underweight. All of these symptoms will be magnified if any truly organic disease is present. All are aggravated by the approach of any school crisis, such as examination, athletic contests, or inspections. Naturally the condition is seasonal, becoming more pronounced as the school term advances and usually improving greatly during vacation periods. Sex has little influence, boys and girls being equally exposed. Temperament and innate physical stamina are the factors which determine to what degree a child will develop "schoolsickness." There are no demonstrable pathologic changes except so far as emotional states may be regarded as being pathologic. The treatment of "schoolsickness" consists largely in an analysis of the situation, as regards physical condition, school, home control and outside activities. Success then depends on the degree to which disturbing elements can be eliminated or compensated for. Treynor believes that the first step must be to rid ourselves of the delusion of educational democracy. The day that we cease to believe that every child must have identical educational opportunities will mark the beginning of a sound system. Why penalize the superior child in the matter of opportunities when his sacrifice is patently of no advantage to the inferior? Would it not be better for all concerned if the inferior child were taught subjects within his comprehension which might later become a means of self-support? And at the same time, the superior child be allowed to fulfil his intellectual possibilities? Why not let him capitalize his superiority instead of allowing his inferior side to dominate him? Ungraded classes, supervised by well chosen, well paid instructors would solve this problem, lightening the strain of fear, anxiety and worry imposed on them by the competitive system. Perhaps the time will come when a child's report card will be marked only "satisfactory" or "unsatisfactory." "Satisfactory" will mean that the child is doing as well as we might normally expect him to do, taking into consideration his age, his health, mentality, degree of social adjustment in the schoolroom and his emotional poise. In order to make such a scheme workable, healthy, enthusiastic and, above all, sympathetic instructors must be employed. Above all, we must rid our schools of those instructors to whom the school represents merely a means of livelihood. But until we have arrived at this millennium let us eliminate the one great evil in today's system: pressure. More leading and less driving; less stress on competition, more on honest effort; less supervision; more spontaneity—these are the means through which schoolsickness will cease to exist.

Johns Hopkins Hosp. Bulletin, Baltimore

45: 203-267 (Oct.) 1929

Some Tenets of Medical Education. L. H. Weed, Baltimore.—p. 203.
*Studies in Reactions of Simple Goiter to Iodine. B. Webster, Baltimore. —p. 215.
*Retinal Blood Vessels in Hypertension and Arteriosclerosis. H. Friedenwald and J. S. Friedenwald, Baltimore.—p. 232.
*Observations on Degeneration and Regeneration of Postganglionic Nerve Fibers. K. Machida, Baltimore.—p. 247.

Reactions of Simple Goiter to Iodine.—Webster injected potassium iodide in quantities of 5, 2.5 and 1.25 mg. intraperitoneally into rabbits with simple hyperplastic thyroid glands, and the changes in heat production were studied and correlated with the histologic changes produced in the gland, as determined by biopsy. The quantity of thyroid hormone elaborated, as indicated by changes in heat production, appeared to vary directly, within certain limits, with the amount of available iodine, as did the extent of involution produced in the gland. This relationship apparently held true until involution was nearly complete.

Retinal Blood Vessels in Hypertension and Arteriosclerosis.—From a study of the eyegrounds in approximately 2,000 medical cases a working classification of retinal vascular disease has been formulated by the Friedenwalds and the clinical correlations of each of the several types of lesions have been investigated.

Degeneration and Regeneration of Postganglionic Nerve Fibers.—From a study of eighty-four cats in which the postganglionic fibers of the cervical sympathetic chain were sectioned, Machida found that the vasoconstrictor fibers to the blood vessels of the ear were supplied by the external carotid branches of the superior cervical ganglion. Recovery from the

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paralytic symptoms required on an average about fifty-six days; the earliest return of function was noticed after forty-nine, and the latest after seventy-six, days. Electrical stimulation of the preganglionic fibers aided in determining the rate of regeneration. A large pupil, exophthalmos, and constriction of the ear vessels persisted for a long time after the signs of paralysis had disappeared. It is believed that a way for the experimental production of exophthalmos may thus have been found. A satisfactory explanation for this phenomenon is still wanting. Histologic control of the processes of degeneration and regeneration showed that degeneration took place about twenty-four hours after section, and that regeneration was well established by the fourteenth day, myelinization having been observed by the twentieth day.

Journal of Bone and Joint Surgery, Boston

11: 695-918 (Oct.) 1929

Scientific Aspects of Orthopedic Surgery. F. H. Albee, New York.—p. 695.
*Experimental Arthritis. J. A. Key, St. Louis.—p. 705.
Simple Complete Diagnostic Roentgen Unit Adapted to All Possible Surgical and Medical Needs. H. B. Philips, New York.—p. 739.
Joint Sequestra of Osteomyelitis. E. Spurrier, Detroit.—p. 747.
*Simple Abduction Splint for Use in Obstetric Paralysis. M. L. Mason, Chicago.—p. 754.
Congenital Scoliosis: Deformity of Manubrium. J. C. Swanson, Fargo, N. D.—p. 758.
*Hodgkin's Disease: An Orthopedic Problem. W. P. Blount, Milwaukee.—p. 761.
*Canvas Hammock. N. A. Cary and L. Barnard, Oakland, Calif.—p. 771.
Shoulder Spica: New Apparatus. A. P. MacKinnon, Winnipeg.—p. 776.
Slipping Femoral Epiphysis: Fifteen Cases. T. A. Willis, Cleveland.—p. 779.
Progressive Muscular Dystrophy: Case. M. Steinberg, New York.—p. 788.
Adjustable Convex Frame. M. H. Herzmark, New York.—p. 794.
Early Treatment of Congenital Dislocation of Hip. V. Putti, Bologna, Italy.—p. 798.
*Reconstructive Surgery in Paralytic Deformities of Lower Leg. M. S. Henderson, Rochester, Minn.—p. 810.
Compensation Treatment of Scoliosis. A. Steindler, Iowa City.—p. 820.
Prehallux (Accessory Scaphoid) in Relation to Flatfoot. F. C. Kidner, Detroit.—p. 831.
Cleidocranial Dysostosis: Hereditary and Familial. S. M. Fitchet, Boston.—p. 838.

Experimental Arthritis.—Key reports his observations on the exudates and gives descriptions of the histologic changes produced in the joints of normal rabbits by the injection of citrated blood and india ink (carbon particles) into the joint cavity. An injection of citrated blood into a normal joint caused the production of a cellular exudate which gradually disappeared in about twelve days. During the first two days after the injection, the majority of the nucleated cells in the exudates were leukocytes; but after this time their number diminished rapidly and most of the cells in the exudates were macrophages and an unusually large percentage of these were clasmatocytes. The exudates caused by seven injections of blood were similar, but the macrophages were larger and more numerous. In the exudates caused by india ink, both the leukocytes and the macrophages remained in the joint throughout the twelve-day period and the majority of the macrophages were monocytes. In none of the joints did the cells of the synovial lining exhibit any tendency to be shed off into the joint cavity.

Simple Abduction Splint for Use in Obstetric Paralysis.—A splint was devised by Mason to give immediate support to the arm, forearm and hand in a recent case of Erb's paralysis. The condition cleared up in a few weeks, the use of the apparatus was discontinued, and the child at the age of 6 months has perfect use of the arm. It is believed that the splint would prove valuable as ready available equipment in any obstetric ward. It can be applied to infants 1 or 2 days old and can be removed as often as required for inspection. Should the condition prove to be of temporary nature, no harm has been done and the infant should recover more quickly from the injury. If the paralysis is more serious the correct treatment has been started at once, and the injury to the nerves may be prevented from increasing in extent. The splint is made of hard sheet aluminum, number 2SH, 0.081 inch in thickness, which can be readily cut with tinners' snips and rounded out into proper shape with hammer and anvil. It is an adaptation of the familiar airplane splint.

Hodgkin's Disease: Orthopedic Problem.—Blount's case reported is unique in that the bone involvement preceded the lymph gland enlargement by two years. Interesting errors in diagnosis were made because of the absence of the usual symptoms.

Canvas Hammock.—A hammock attachment for Hawley tables is presented by Cary and Barnard for use in making plaster jackets and shells. Surgeons who have used this device have found additional merit in its use, especially in fixation of extremities after pedicle grafts.

Reconstructive Surgery in Paralytic Deformities of Lower Leg.—A statistical review of 350 cases has convinced Henderson that restoration of nerve supply to the muscles by neurotization has not been successful. Tendon transference, whereby the insertion of a functioning muscle is transferred to another insertion, may, in selected cases, do much to restore function. Support by paralyzed tendons, tenodesis, has a limited field. Artificial silk or linen ligaments are not satisfactory in the foot as a rule. Stabilization by means of the bony structure of the foot offers the widest and most useful field for reconstructive surgery, the various and varied forms of arthrodesis, the astragalectomy of Whitman, and the bone-check operations of Campbell and Putti being examples. The combination of tendon transference and arthrodesis to give stability serves both to enhance the value of the tendon transference procedures and the arthrodesis.

Journal of Comparative Psychology, Baltimore

9: 305-359 (Oct.) 1929

Reproductive Behavior of Guinea-Pig: III. Modification of Behavior Pattern. C. M. Louttit, New Haven, Conn.—p. 305.
Discrimination of Absolute Versus Relative Brightness in Ring Dove, Turtur Risorius. C. J. Warden and J. B. Rowley, New York.—p. 317.
Intelligence and Suggestibility in Whites and Negroes. P. C. Young, Baton Rouge, La.—p. 339.

Journal of Industrial Hygiene, Baltimore

11: 257-292 (Oct.) 1929

Industrial Workshops and Importance in Relation to Placing Handicapped. R. B. Crain, Rochester, N. Y.—p. 257.
*Respiratory Diseases in Portland Cement Plant. L. R. Thompson and D. K. Brundage.—p. 266.
Calibration of Kata-Thermometer Over Wide Range of Air Conditions. C. P. Yaglou and K. Dokoff, Boston.—p. 278.

Respiratory Diseases in Portland Cement Plant.—The more important factors affecting the frequency of disabling attacks of respiratory disease among employees of a cement company were measured and evaluated by Thompson and Brundage. None of the factors measured affected the respiratory incidence rate as much as one which was reflected in the contrast between the respiratory rate among those who quit and the rate among those who did not quit during the three years of the study. A rather detailed analysis revealed indications of a process of self-elimination from the industry of those who were more susceptible to respiratory illness and who were affected deleteriously by the dust. The effect on the respiratory system of exposure to different kinds of working conditions was observed by means of respiratory disability rates adjusted for differences in the physical condition of persons employed in each type of environment among men who tended to remain in the industry. Persons obliged to continue work in the open during all kinds of weather showed the highest disability rate from respiratory illness, and were followed by the group exposed to the heavier concentrations of dust. Men exposed to limestone dust experienced slightly more respiratory disability than those working in cement dust. The respiratory rate also was high in the emergency and general repair crews, which were often subjected to very sudden changes in the nature of their working environment.

J. of Pharmacol. & Exper. Therapeutics, Baltimore

37: 121-259 (Oct.) 1929

Functional Changes in Autonomic System and Action of Mercury. W. Salant and K. Brodman, New York.—p. 121.
Action of Strychnine on Denervated Heart and on Secretion of Epinephrine. P. M. Harmon and C. M. McFall, Boston.—p. 131.
Effect of Morphine on Denervated Heart and on Secretion of Epinephrine. P. M. Harmon and C. M. McFall, Boston.—p. 147.
Behavior of Extracardiac Nerves of Cat Under Ether: Potential Source of Error. J. L. Kobacker and R. Rigler, Vienna, Austria.—p. 161.

Relation of Heterocyclic Compounds to Autonomic Nervous System. R. Hunt and R. R. Renshaw, New York.—p. 177.
Ethers of Formocholine and Choline. R. Hunt and R. R. Renshaw, New York.—p. 193.
Absorption, Distribution and Excretion of Carbon Tetrachloride in Dogs Under Various Conditions. B. H. Robbins, Nashville, Tenn.—p. 203.
Ethyl Alcohol in Fowls After Exposure to Alcohol Vapor. T. M. Carpenter, Boston.—p. 217.

Journal of Preventive Medicine, Chicago

3: 343-417 (Sept.) 1929

*Cancer Studies in Massachusetts: 3. Cancer Mortality in Nativity Groups. H. L. Lombard and C. R. Doering, Boston.—p. 343.
*Bactericidal Action of Ultraviolet Light from Series of Carbon Arcs with Known Spectra: I. Effect of Short Exposures: II. Resistance in Relation to Determination of End Point. R. G. Perkins and H. Welch, Cleveland.—p. 363.
Carriers Among Certain Rodents Surviving Experimental Paratyphoid-Enteritidis Infections. S. E. Branham and L. Robey, Rochester, N. Y. —p. 377.
*Do Mothers Transmit Immunity to Children? M. Knowlton, Hartford, Conn.—p. 385.
Nature of Etiologic Agent of Typhus Fever. B. Fejgin, Warsaw.—p. 391.
Comparison of Two Methods of Obtaining Epidemic Cycles. G. E. Harmon, Cleveland.—p. 405.

Cancer Mortality in Nativity Groups.—Lombard and Doering found that a sufficiently close correlation exists between the social classes in England and the nativity groups in Massachusetts in respect to the cancer death rate to warrant the opinion that economic social conditions are a factor in the causation of cancer. The foreign born have much higher rates than the native born of native parents in cancers of the buccal cavity and the stomach. Cancer of the stomach is abnormally high among both males and females for all foreign born groups, and cancer of the buccal cavity among the Irish, English and Teutons. Cancer of the lower intestinal tract in females is high among the Irish and English, while it is low among the Italians. The Canadians have a high rate for cancer of the uterus, and the Russians a low rate. Both the Italians and the Russians have low rates for cancer of the breast. The Irish and the Italians show higher rates in Boston than in their native countries. The sex ratio (females per male) is much higher for the native born of native parents than for any of the foreign nativity groups which have been studied in Boston and in Europe. The Irish have slightly poorer diagnostic facilities than the other foreign groups, but the foreign born taken as a whole have sufficiently good diagnosis to eliminate the factor of diagnosis in discussing the high cancer death rate of the foreign born.

Bactericidal Action of Ultraviolet Rays from Series of Carbon Arcs with Known Spectrums.—Perkins and Welch assert that the bactericidal action of ultraviolet radiation is extremely rapid, reductions of as high as 80 per cent occurring in 0.2 second. The relative bactericidal action of five therapeutic carbons corresponded with their ultraviolet emission.

Do Mothers Transmit Immunity to Children?—Cases of each of fifteen infectious diseases in infants under 1 year of age in Connecticut have been tabulated by monthly age groups by Knowlton to ascertain if possible the duration of "inherited" immunity. Theoretically a mother may transmit antibodies to a child through the placenta before birth or through milk after birth. If protection were transmitted to nursing infants through milk, an increase in susceptibility at weaning time might be expected. This does not appear from the figures quoted by Knowlton. The immunity of infants to disease may be explained in other ways than by the transmission of antibodies from the mother: (1) antibody transmission through the placenta; (2) antibody transmission through milk; (3) a state of "reaction inertia" or lack of allergy in the tissues; (4) lessened exposure of infants to infective discharges from others.

Kentucky Medical Journal, Bowling Green

27: 427-486 (Oct.) 1929

Management of Uterine Hemorrhage. I. T. Fugate, Louisville.—p. 457.
Specialist and General Practitioner. W. S. Kinsolving, Eddyville.—p. 461.
Management of Case of Communicable Disease. A. Stewart, Georgetown. —p. 463.
Syphilis: Underlying Causative Factor in Denudation of Mucosa: Case. L. L. Solomon, Louisville.—p. 467.
Intracranial Involvement Complicating Exacerbation of Chronic Middle Ear Infection: Three Cases. A. L. Bass, Louisville.—p. 471.
Importance of Early and Correct Diagnosis. E. B. Houston, Murray. —p. 475.
Hyperemesis in Twin Pregnancy. W. T. McConnell, Louisville.—p. 479.
Old Time Remedies for Typhoid Fever. S. F. Keffer, Grayson.—p. 482.

Medical Journal & Record, New York

130: 421-480 (Oct. 16) 1929

Factors of National Importance Influencing Growth and Development. S. Pern, Melbourne, Australia.—p. 421.
Coccidioidal Granuloma: Seven Cases. H. P. Jacobson, Los Angeles. —p. 424.
Blood Transfusion (Laboratory and Clinical Aspects). P. J. Manhcims, New York.—p. 428.
Colles' Fracture. E. J. Garvin, Philadelphia.—p. 432.
Arthritis Deformans of Ankle and Foot Joints. A. Gottlieb, Los Angeles. —p. 434.
Treatment of Epilepsy. E. B. McCready, Pittsburgh.—p. 436.
*Tumors of Brain Simulating Vascular and Other Degenerative Lesions. I. S. Wechsler and H. Gross, New York.—p. 439. (C'en. from p. 397.)
Need for Education in Cancer Diagnosis and Treatment. F. C. Wood, New York.—p. 443.
Cancer of Rectum. J. M. Lynch, New York.—p. 445.
*How More Women Can Be Saved from Dying of Cancer of Breast. H. Auchincloss, New York.—p. 446.
Cancer of Bladder. E. Beer, New York.—p. 449.
Carcinoma of Uterus. I. Kross, New York.—p. 451.
Cancer of Mouth. H. W. Meyer, New York.—p. 453.
Malignancy of Mouth and Throat. J. Muir, New York.—p. 457.
Present Status of Intravenous Therapy. W. F. Dutton, Amarillo, Texas. —p. 459.

Tumors of Brain Simulating Vascular and Other Degenerative Lesions.—Seven cases of brain tumor are reported by Wechsler and Gross, in each of which the diagnosis of a vascular or other degenerative lesions was made. In each case the symptoms, both motor and sensory, simulated localized or diffuse thrombosis of cerebral vessels. In some, tumor coexisted with cerebral thrombosis or the tumor invaded an area supplied by a sufficiently large blood vessel to give the clinical picture of vascular disease. In others, localizing signs which might have been attributed to tumor progressed in such a way as to be equally significant of intermittent thrombosis or of multiple vascular accidents. In not a single instance were the so-called cardinal symptoms of increased intracranial tension—headache, vomiting and choked disk—sufficiently prominent features of the clinical picture to warrant a positive diagnosis of tumor or justify operative intervention. In all, the differential diagnosis was impossible; in some, tumor was not even suspected and in only one or two were the general symptoms sufficiently striking to indicate ventriculography, although it is possible that if this method had been employed more often fewer errors would have been made.

How More Women Can Be Saved from Dying of Cancer of Breast.—Auchincloss asserts that the one thing that can be done at once to lessen the number of women dying yearly from breast cancer is to see that the advice to feel the breasts frequently for lumps after twenty is "What Every Woman Knows."

Michigan State M. Soc. Journal, Grand Rapids

28: 667-728 (Oct.) 1929

Some of Our Problems. L. J. Hirschman, Detroit.—p. 667.
Diagnosis of Peritonitis in Infancy and Childhood. I. A. Abt,, Chicago. —p. 674.
Hemorrhagic Disease of New-Born. J. C. S. Battley, Port Huron.—p. 680.
Present Status of Treatment of Bronchial Asthma. G. L. Waldbott, Detroit.—p. 684.
Unrecognized Occiput Posterior Position. H. E. Northrup, Highland Park.—p. 686.
Certain Difficulties and Emergencies of Obstetric Practice. W. P. Tew, London, Canada.—p. 690.
Difficulties in Roentgen Examination of Pulmonary Tuberculosis in Children. C. C. Birkelo, Detroit.—p. 695.
Acute Peptic Perforations. L. C. Snodgrass, Flint.—p. 699.
Management of Osteomyelitis. G. J. Curry, Flint.—p. 703.
Surgery of Phrenic Nerve and Intrapleural Pneumolysis. E. J. O'Brien, Detroit.—p. 705.
Pituitary Tumor: Case. E. Lipkin, Detroit.—p. 708.
Michigan's Department of Health. G. L. Kiefer, Lansing.—p. 710.

Military Surgeon, Washington, D. C.

65: 497-644 (Oct.) 1929

Diagnostic Importance of Physical Examination. W. S. Thayer.—p. 497.
Preliminary Report of Fifth International Congress of Military Medicine and Pharmacy, London, May 6-11, 1929. E. E. Hume.—p. 515.
Metallic Mercury in Subcutaneous Tissue: Case. C. A. Stammel.—p. 529.

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Points in Diagnosis and Treatment of Spinal Injuries. C. L. Wilmoth. —p. 531.
Value of Medical Writing. J. M. Troutt.—p. 536.
Reduction of Venereal Rate in Hawaiian Department. R. M. Blanchard. —p. 541.
Command of Detachment at Army General Hospital. W. W. Vaughan. —p. 547.
Precepts of Military Hygiene of Prince de Ligne. F. de Block. Translated by E. E. Hume.—p. 561.

New England Journal of Medicine, Boston

201: 709-752 (Oct. 10) 1929

*Clinical Use of Potassium Sulphocyanate in Hypertension: Fifty-Nine Cases. R. S. Palmer, L. S. Silver and P. D. White, Boston.—p. 709.
Functional Disorders of Colon. E. D. Kiefer, Boston.—p. 715.
Industrial Hernia. E. L. Young, Jr., Boston.—p. 720.
Admitted Manslaughter: Case. F. D. Jones, Springfield, Mass.—p. 723.
Chemical Evidences of Alcoholic Intoxication and Medicolegal Significance. A. O. Gettler, New York.—p. 724.

Clinical Use of Potassium Sulphocyanate in Hypertension.—Palmer et al. have used potassium sulphocyanate in fifty-nine cases of essential hypertension. They have used the drug in doses of 1½ grains (0.1 Gm.) in 1 drachm (4 cc.) of water three times a day for the first week, twice a day for the second week, and once daily thereafter. This has been varied somewhat in different cases. Usually one course of three or four weeks on this schedule has been employed before omitting the drug. A reduction in systolic pressure of 30 or more millimeters of mercury occurred in 42 per cent of this series and a possibly favorable effect, though not so marked, in a larger percentage. Unfavorable symptoms may, apparently, be produced by the sulphocyanate in patients with renal changes and in those with coronary sclerosis. The drug should be used with care in these cases. No alarming symptoms have been noted in any patient. Further studies are contemplated to determine whether this therapy is of permanent value and, if so, in what cases.

New Jersey Medical Soc. Journal, Orange

26: 665-710 (Oct.) 1929

Atypical Cases of Appendicitis. J. B. Deaver, Philadelphia.—p. 665.
Surgical Records in Color Motion Photography. J. E. Sheehan, New York.—p. 669.
Mild Forms of Trichinosis. L. Mancusi-Ungaro, Newark.—p. 671.
Observations on 1,500 Feeding Cases. J. H. West, Easton, Pa.—p. 673.
Heart Muscle. F. P. McKinstry, Washington.—p. 676.
Manipulation of Sound in Male Urethra. G. T. Spencer, Elizabeth.—p. 678.
Ocular Disturbances in Organic Nervous Disease. M. A. Burns, Philadelphia.—p. 678.
That Light Outdoor Job. B. M. Harman, Verona.—p. 684.

New York State J. of Medicine, New York

29: 1241-1304 (Oct. 15) 1929

Cardiac Exhibit at State Meeting. J. H. Bainton, New York.—p. 1241.
Pathologic Section of Cardiac Exhibit. C. E. de La Chappelle, New York.—p. 1242.
Heart Disease: Broad View. R. H. Halsey, New York.—p. 1246.
Clinical Signs of Heart Disease: Etiology. N. B. Foster, New York.—p. 1248.
On Reasons for Further Statistical Analyses of Heart Diseases. A. E. Cohn, New York.—p. 1250.
*Mortality of Heart Disease in New York State. R. H. Halsey, New York.—p. 1251.
Health Hazards from Ingestion of Small Amounts of Metals. C. N. Myers and B. Throne, New York.—p. 1258.
Radon and Surgical Diathermy in Neoplasms of Upper Air Passages. G. A. Robinson, New York.—p. 1265.
Missing Teeth. W. Lintz, New York.—p. 1268.
*Pathologic Effects of Ultraviolet Rays on Eye and Treatment. E. G. Lear, New York.—p. 1270.
Combined Morphine, Scopolamine and Rectal Ether for Analgesia in Labor. F. J. Schoeneck, Syracuse.—p. 1273.

Mortality of Heart Disease in New York State.—Halsey discusses briefly the report of the special committee of the New York State Society, working on the study of heart disease in the state of New York during the past two years. It is shown that under 40 years of age rheumatism accounts for most of the heart disease, syphilis for some of the harm a little before and a little after 40 years of age, and arteriosclerotic or senescent changes for the deaths after 40. That is, arteriosclerosis, or senescent changes, account for 90 per cent, which is what might be expected with the peak of the deaths occurring at age 70. It is urged that, in order to gain knowledge on the causes of deaths from heart disease, physicians must fill out death certificates, stating the etiologic factor wherever this is possible. The diagnosis of heart disease should contain a statement of the etiologic, the anatomic, changes in the heart, and the effect of those anatomic changes on the physiologic, or functional, efficiency of the heart or the valves.

Pathologic Effects of Ultraviolet Rays on Eye and Treatment.—Lear asserts that the ultraviolet rays are capable of producing a definite pathologic condition of the eye called "photo-ophthalmia." There is a definite period of latency between the time of exposure and the onset of symptoms. A certain definite amount of these days is capable of producing the pathologic condition in a one or liminal dose or in fractional or subliminal doses, the sum total of which should equal one continuous or liminal dose. The onset of the symptoms are first itching, then pain and photophobia. It is proved definitely, clinically as well as experimentally, that the parts of the eye involved are the conjunctiva, cornea, iris and lens. Whether the retina too is affected by these rays is not definitely established and remains to be determined by future observation and experiment. As regards the treatment, the ordinary treatment of conjunctivitis such as silver nitrate or zinc sulphate will aggravate the condition. The most gratifying effects are obtained from the immediate instillation of a suitable cycloplegic, preferably homatropine, with cold applications, and the wearing of smoked glasses against strong rays of light.

Northwest Medicine, Seattle

28: 439-484 (Oct.) 1929

Suggestions to State Association. F. H. Brush, Yakima, Wash.—p. 439.
Tuberculosis Infection and Pathology. W. S. Griswold, Seattle.—p. 441.
Tuberculosis: Clinical Types. J. F. Steele, Tacoma, Wash.—p. 442.
Id.: Symptoms. L. G. Woodford, Everett, Wash.—p. 444.
Id.: General Diagnosis. F. Slyfield, Seattle.—p. 445.
Id.: Special Diagnosis. C. J. Johannesson, Walla Walla, Wash.—p. 447.
Id.: Differential Diagnosis. F. S. Miller, Spokane.—p. 449.
Id.: Prophylaxis. J. M. Henderson, Seattle.—p. 451.
Id.: Treatment. R. M. Stith, Seattle.—p. 453.
Id.: Sanatorium Home Treatment. J. E. Nelson, Seattle.—p. 455.
Id.: Complications. R. M. Stith, Seattle.—p. 456.
Id.: Artificial Pneumothorax. F. Slyfield, Seattle.—p. 458.
Surgery of Pulmonary Tuberculosis. O. S. Proctor, Seattle.—p. 458.
Treatment of Pulmonary Abscess. I. Eloesser, San Francisco.—p. 460.
Child Contact with Tuberculosis. S. G. Hendricks, Portland, Ore.—p. 467.
Esophageal Stenosis Following Typhoid Fever. J. H. Fitzgibbon, Portland, Ore.—p. 469.
Bladder Tumors. W. J. Pennock and W. J. Stark, Spokane, Wash.—p. 470.

Ohio State M. Journal, Columbus

25: 785-848 (Oct. 1) 1929

Renal Urologic Conditions in Early Adult Life. H. B. Freiberg, Cincinnati.—p. 789.
Thrombocytopenic Purpura Hemorrhagica. S. R. Salzman, Toledo.—p. 792.
Sinus Disease in Children. V. W. Fischbach, Cincinnati.—p. 796.
Benzol Poisoning and Prevention in Rubber Industry. P. A. Davis, Akron.—p. 798.
Comparison of Behavior Problems of Childhood with Mental Aberrations of Adults. R. A. Phillips, Cincinnati.—p. 802.
Hypernephroma with Pulmonary Metastasis Simulating Tuberculosis. E. H. Hedges and F. G. Maurer, Lima.—p. 807.
Camphorated Oil Poisoning: Case. J. Blair, Cleveland.—p. 808.

Oklahoma State Med. Assn. Journal, Muskogee

22: 343-375 (Oct.) 1929

Surgical Treatment of Exophthalmic Goiter. F. W. Rankin, Rochester, Minn.—p. 343.
Roentgen Treatment of Exophthalmic Goiter. A. L. Stocks, Muskogee. —p. 346.
Heart Facts. A. B. Chase, Oklahoma City.—p. 349.
Early Symptomatology of Cardiac Decompensation. H. Fagin, Osage. —p. 352.
Bundle Branch Block. R. K. Harlan, Temple, Texas.—p. 353.
Meningococcic Meningitis. G. H. Garrison, Oklahoma City.—p. 355.
Slide Test and Wassermann. H. Jeter, Oklahoma City.—p. 358.

Public Health Reports, Washington, D. C.

44: 2457-2504 (Oct. 11) 1929

Breeding Places of Anopheles in Yazoo-Mississippi Delta. M. A. Barber and W. H. W. Komp.—p. 2457.
Heart Disease a Public Health Problem. T. Clark.—p. 2463.

Rhode Island Medical Journal, Providence

12: 149-164 (Oct.) 1929

Ketogenic Diet in Epilepsy. W. N. Hughes, Providence.—p. 149.
Common Gynecologic Conditions and Treatment. A. Corvese, Providence. —p. 153.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. Actinotherapy, London

4: 133-156 (Oct.) 1929

Treatment of Pulmonary Tuberculosis with Universal Light Baths. C. H. Würtzen.—p. 135.
Ultraviolet Treatment in Chronic Pulmonary Tuberculosis. M. Weinbren.—p. 137.
Heliotherapy of Surgical Tuberculosis Complicated by Pulmonary Tuberculosis. A. Rollier.—p. 140.
Ultraviolet Treatment of Tuberculosis of Larynx. O. Strandberg.—p. 143.
Artificial Light Treatment in County Tuberculosis Scheme. G. L. Cox.—p. 145.
Further Notes on Stannington Sanatorium Vita Glass Pavilion. T. C. Hunter.—p. 148.
Diathermy in Treatment of Cervix and Urethra. E. P. Cumberbatch and C. A. Robinson.—p. 149.
Medical Review of British Spas: IV. Bath. M. B. Ray.—p. 151.

British J. Surgery, Bristol

17: 193-368 (Oct.) 1929

X. Hunter's Operation for Cure of Aneurysm. D. Power.—p. 193.
*Dermoid Cyst of Mediastinum. C. Robertson and R. E. B. Brown.—p. 197.
*Cholesterosis of Gallbladder. C. F. W. Illingworth.—p. 203.
*Splenectomy for Egyptian Splenomegaly: 390 Cases. H. E. S. Stiven.—p. 230.
Causation of Multiple Exostoses. J. B. Hume.—p. 236.
Endothelioma of Nasopharynx: Infiltrating Tumor at Base of Skull. A. J. Gardham.—p. 242.
Riedel's Chronic Thyroiditis: Two Cases. H. F. Wingate.—p. 264.
Aneurysm of Splenic Artery: Case. W. Anderson and J. Gray.—p. 267.
*Secondary Hydrocephalus as Factor in Diagnosis and Localization of Intracranial Tumors. C. P. G. Wakeley and I. M. Allen.—p. 278.
Volkmann's Ischemic Contracture Treated by Transplantation of Internal Epicondyle. N. Hodgson.—p. 317.
Pathology of Kümmell's Disease. J. Cardis, G. F. Walker and R. H. Oliver.—p. 319.
Transfusion of Citrated or Defibrinated Blood Through a Fine Needle. H. Moll.—p. 321.
Radium Problem. G. E. Gask.—p. 326.
Fibrosarcoma of Cervical Meninges: Case. C. P. G. Wakeley.—p. 329.
Intestinal Obstruction Due to Strangulation of Loop of Small Intestine in Opening of Left Broad Ligament: Two Cases. R. Janes.—p. 333.
Traumatic Rupture of Spleen Involving Pedicle: Splenectomy; Complete Recovery. G. Armitage.—p. 335.
Primary Jejunal Ulcer. J. M. Black.—p. 338.
Double Intussusception of Jejunum Associated with Polypus. W. C. Somerville-Large.—p. 340.
Acute Pancreatic Necrosis in Association with Diverticula of Intestine. H. W. L. Molesworth.—p. 342.
Intestinal Obstruction; Ileocolostomy: Intestinal Hernia and Volvulus: Accident from Operation: Results of Closed Ileal Loop in Man. H. W. L. Molesworth.—p. 344.

Dermoid Cyst of Mediastinum.—Robertson and Brown report the case of a woman, aged 36, who three years ago began to have severe paroxysms of coughing, which came on every few weeks. No expectoration followed till eighteen months before admission, when she coughed up a hair. Since then she had occasionally coughed up a few hairs during a paroxysm. Three months before admission after a severe bout of coughing she brought up a number of coarse white hairs about 3 inches long. After this on various occasions she coughed up hairs and sebaceous matter. There were no abnormal physical signs in the chest. The radiologist reported the presence of a rounded, well defined, abnormal shadow in the anterior mediastinum. The observations were consistent with the diagnosis of dermoid cyst of the mediastinum. A cyst of the size of a small coconut was removed. The patient made a complete recovery.

Cholesterosis of Gallbladder.—Illingworth has examined thirty-five cases of this type and here reviews the disease in all its aspects, clinical and pathologic, and also reports on experimental work which has been carried out by him in regard to its pathogenesis. Cholesterosis of the gallbladder, which includes the so-called strawberry change and also cholesterol polyposis, consists essentially of an infiltration of the epithelium and the stroma of the mucous membrane with lipoids, and especially with cholesterol. In the stroma a characteristic feature is the presence of large "foamy" cells of endothelial origin. It is usually associated with cholecystitis, especially of mild degree. Gallstones are frequently present, especially "pure" cholesterol stones. Cholecystography indicates that in uncomplicated cases two functions of the gallbladder (concentration of the bile and the emptying in response to fats) are not affected. The cholesterol content of the blood is raised in some cases but is often normal. Symptoms, even in uncomplicated cases, are extremely varied, and the diagnosis is correspondingly difficult. Treatment by cholecystectomy is the most rational procedure and appears to yield satisfactory results. Experiments are described which indicate that (*a*) cholesterosis may be most readily brought about in the rabbit by the association of a prolonged state of hypercholesterolemia with a mild chronic bacterial cholecystitis; (*b*) cholesterosis does not result simply from the deposit of an excess of cholesterol from the blood but is intimately linked up with the function of the gallbladder in regard to cholesterol. In an experimental investigation of the absorbing function of the gallbladder it has been shown that (*a*) absorption of several other lipoids from the bile is easily demonstrable; (*b*) cholesterol is absorbed in unrecognizable form, its presence in the mucosa being obscured, probably by admixture with other lipoids. Absorption of cholesterol from the bile probably occurs only when it is present in excess. The conclusion is drawn that cholesterosis results from two essential primary changes: (*a*) an increase in the cholesterol content of the bile which leads to the absorption of cholesterol into the mucous membrane of the gallbladder, and (*b*) a change in the physical and chemical state of the absorbed but invisible cholesterol, which renders it optically active and recognizable, and which by preventing its transport leads to its accumulation in the gallbladder wall. This change is most frequently due to an inflammation of the gallbladder.

Splenectomy for Egyptian Splenomegaly.—Stiven has removed 390 spleens for splenomegaly with an immediate mortality of 13 per cent. Following up patients caused this figure to be increased to 19 per cent by those who die within two or three months. He does not choose his cases but operates on all patients who come if they can possibly stand the operation, even patients with ascites, which is an unfavorable factor. When a patient is admitted for splenomegaly with a view to operation, he is given as a matter of routine a dose of carbon tetrachloride varying from 2 to 4 Gm. according to age and weight; a full course of intravenous injections of antimony and potassium tartrate, 0.12 Gm., every two days for twelve injections, and a course of injections of arsphenamine or corresponding drug. He gives also a mixture of rhubarb and soda for the first week and subsequently a mixture of iron and arsenic and a full nourishing diet, including "fool nabet"; that is, beans which have been allowed to germinate forty-eight hours in water. These are cooked quickly—four or five minutes only—in a good soup. They have remarkable effect on the pellagrous patients and others suffering from a diet deficient in vitamins. This course of treatment lasts from five to six weeks, when the patient is greatly improved in general health and can stand the shock of operation. The evening before operation, the patient is purged and given an injection of pneumococcic vaccine. A dose of morphine and atropine is given half an hour before the operation, which is performed under intraspinal anesthesia. After operation, patients are kept without anything to drink for twelve hours. As a rule no rectal saline or intravenous blood transfusion is given. Diet from the beginning is strictly fever diet, and only after five days is a purge given and a nourishing diet commenced. As a rule, patients go out after fifteen days, weak and happy, with a bottle of iron and arsenic, relieved of the intolerable weight in their abdomens, and in two or three months are really fit for work.

Secondary Hydrocephalus as Factor in Diagnosis and Localization of Intracranial Tumors.—The influence of secondary hydrocephalus on the diagnosis and localization of intracranial tumors is discussed, and the methods of investigation and treatment are detailed by Wakeley and Allen. Seven cases of intracranial tumor complicated by secondary hydrocephalus are described to illustrate the difficulties in diagnosis and localization in the presence of secondary hydrocephalus. The authors state emphatically that ventriculography should be employed in the investigation of a case only when all other methods of examination have failed to establish a diagnosis

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and to localize the lesion; and, in carrying out this procedure, ventricular puncture is to be preferred to spinal puncture. The treatment of secondary hydrocephalus should be instituted as early as possible commensurate with thorough investigation of the patient. It should provide for the relief of pressure above the tentorium even when the local lesion is situated in the posterior fossa of the skull—a result which is best achieved, when symptoms of a subtentorial lesion are present, by the operation for mobilization of the tentorium.

British J. Tuberculosis, London

23: 169-230 (Oct.) 1929

Pitfalls in Statistical Study of Tuberculosis. P. Stocks.—p. 169.
Tuberculosis Survivals: Mortality Experience of Cases of Pulmonary Tuberculosis Notified in Ipswich Since 1909. A. M. N. Pringle.—p. 175.
Tuberculosis in the Tropics. H. H. Scott.—p. 179.
Problem of Tuberculosis in India. C. Muthu.—p. 190.
Dispensary Treatment of Tuberculosis. A. P. Ford.—p. 193.
Tuberculosis Museum. S. H. Daukes.—p. 195.

British Medical Journal, London

2: 605-654 (Oct. 5) 1929

Treatment of Pleuritic Effusions. T. Horder.—p. 605.
*Lymph-Stasis the Precursor of Cancer. W. S. Handley.—p. 607.
*Chronic Dyspepsia in Children of School Age. F. S. Langmead.—p. 612.
Minor Injuries to Eye in Industry. B. Cridland.—p. 615.
*Results of Induction of Labor with Animal Bladders. G. F. Gibberd.—p. 617.
Present Position of Roentgen Therapy in Malignant Disease. F. Hernaman-Johnson.—p. 618.
Sycosis Barbae. J. T. Ingram.—p. 620.
*Treatment of Chronic Coccogenic Sycosis (Barbers' Rash). J. A. Scott.—p. 621.
Unusual Type (Luxatio Erecta) of Dislocation of Shoulder. N. Hodgson.—p. 622.
Acute Appendicitis Complicating Double Ovarian Cyst in Young Girl. C. F. Mayne.—p. 622.
Diuretic Effect of Novasurol. C. E. Perry.—p. 622.
Hydatid Cyst of Heart. N. L. Corkill.—p. 622.

Lymph-Stasis the Precursor of Cancer.—Handley asserts that his observations lead him to believe that the origin of cancer is intimately associated with local obstruction of the lymph vessels in the area where the cancer arises. To produce cancer the obstruction must be of long standing—must have lasted from twenty to thirty years. It may not be complete enough to cause obvious lymphatic edema but may manifest itself only by papillary hypertrophy and increased cellularity of the subepithelial connective tissues.

Chronic Dyspepsia in Children of School Age.—Langmead describes the symptoms of dyspepsia in children of school age as it is usually encountered, makes a brief comparison between it and dyspepsia in adults, and suggests that there is no fundamental difference between intestinal dyspepsia in children and many examples of dyspepsia in adults, and no reason for regarding it as a disease apart, with an individual etiology. The relations of dyspepsia at this age to diet, to local infections, to the liver and to the nervous system are considered briefly.

Results of Induction of Labor with Animal Bladders.—Gibberd analyzes thirty cases of induction of labor by means of pigs' and sheeps' bladders filled with glycerin. Only cases in which pregnancy had progressed past the twenty-eighth week are considered. The indications for induction in these cases were either disproportion between the size of the head and the pelvis, or maternal toxemia. The method was successful in twenty-seven cases. The average induction interval was two hours, the longest seventy-two hours, the shortest two hours. In eleven cases it was less than six hours. In twenty-three cases it was less than twenty-four hours. In four cases the puerperium was morbid. The author regards the lessening of the induction interval as being a real advantage of the animal bladder method, and at the same time the disadvantages associated with it seem to be no greater than with other instrumental methods of induction.

Treatment of Chronic Coccogenic Sycosis (Barbers' Rash).—Scott first epilates infected follicles and evacuates pustular lesions with a clean needle. Next he washes the affected parts with a superfatted sulphur soap. After drying the parts he applies an iodine solution containing iodine (without potassium iodide), 4 grains (0.26 Gm.); alcohol (90 per cent), 1 ounce (30 cc.). After this has dried he smears on a sulphur lotion, sparingly, all over the affected parts. This lotion contains: precipitated sulphur, 1-2 drachms; spirit of camphor, 1 drachm (4 cc.); calamine lotion, sufficient to make 8 ounces (236 cc.). Lastly he applies sparingly a small quantity of zinc cream all over the affected parts: zinc oxide, 15 grains (1 Gm.); neutral yellow petrolatum, 1 ounce (30 Gm.). This treatment is given once a day and is said to be effective.

Lancet, London

2: 751-802 (Oct. 12) 1929

Recent Aids in the Diagnosis of Common Disorders. T. C. Hunt.—p. 751.
Syphilis of Lung with Pulmonary Arteritis (Ayerza's Disease). G. L. S. Konstam.—p. 756.
Resistance to Malignant Growth. T. Heaton.—p. 762.
*Use of Insulin in Treatment of Pernicious Anemia. L. von Varga.—p. 764.
Loa Loa Infections: Case. N. A. D. Sharp.—p. 765.
Enlargement of Left Auricle of Heart. F. Bach and T. S. Keith.—p. 766.
Mental Factor in Bronchial Asthma: Two Cases. M. K. el Kholy.—p. 767.

Use of Insulin in Treatment of Pernicious Anemia.—Von Varga reports eight cases in which insulin proved to be effective. The subjective condition improved in a short time in response to insulin by itself, as well as to insulin-liver and insulin-arsenic treatments. After insulin has been taken bulimia sets in, and the vertigo, buzzing in the ears, and general debility disappear; the condition of the patients visibly improves, and the number of red corpuscles and the hemoglobin content increase (by 30,000 to 40,000 and 5.10 per cent, respectively, a day). The headaches disappear last, but these, together with serious anemia, are correlated with the gastro-intestinal disorders, which, as a rule, remain to the end and are often strongly marked. The constant anorexia can be transformed into bulimia in three or four days by insulin, so that patients want to eat continuously. Return of healthier color may be looked for on the tenth day; this and the redness of the lips is increasingly pronounced. As the blood count and hemoglobin values rise there is a fall in the color index and a disappearance of hyperchromatosis, together with a decrease of anisocytosis, megalocytosis and poikilocytosis, and disappearance of polychromatophilia and normoblastosis. The only symptom which remains to the end, and which it is impossible to influence in any way, is achlorhydria.

Medical J. of Australia, Sydney

2: 388-422 (Sept. 21) 1929

Relation of Pathology of Thyroid Disease to Clinical Findings. C. S. Hicks.—p. 388.
Organization of Cancer Research and Treatment. H. G. Chapman.—p. 390.
*Plan of Campaign Against Cancer. H. M. Moran.—p. 394.
Roentgen Absorption Spectrum of Chorio-Allantoic Membrane of Chick Embryo and Emission Spectrum of Ash of Egg of Domestic Fowl. W. H. Love.—p. 395.
Roentgen Evidence of Ulceration in Stomach and Duodenum. H. W. Wunderly.—p. 396.
Treatment of Nervous Disorders. J. Bostock.—p. 400.

Plan of Campaign Against Cancer.—Moran's plan proposes: 1. A central cancer committee (lay and medical) whose functions shall be: to collect money and control its disbursal; provide facilities for research and treatment; direct propaganda and give instruction in prophylaxis; collect statistics; supply information and advice, and coordinate all cancer activities. 2. Centers for diagnosis and treatment whose functions shall be: to diagnose and treat cancer; medical jury system with surgeon, pathologist, deep roentgen specialist and radium specialist, having available biochemist, physicist and specialists in ear, nose and throat, eye and gynecology; keep records and arrange a follow-up system; publish scientific reports of the work done; train nurses as technicians, and create a pathologic museum for educational purposes. 3. Consultoria, which are posts of diagnosis and selection, staffed by a jury of three (surgeon, pathologist and physical therapeutist). Their function is to diagnose cancer and to select the patients suitable for special forms of treatment. 4. The medical man, whose function is to detect malignant disease at the earliest moment.

Archives des Maladies du Cœur, etc., Paris

22: 449-512 (July) 1929

*Diabetes: Obliterative Arteritis with Formation of New Vessels. M. Letulle, M. Labbé and J. Heitz.—p. 449.
Cardiac Reflexes of Sympathetic Nervous System. M. Mandelstamm, A. Zaitschik, B. Jitnikoff, O. Ellenbogen and A. Schafran.—p. 457.
Physiology of Pressor Fibers in Ansa Subclavia in Dog. D. Danielopolu.—p. 478.
Auricular Flutter (2:1) Following Diphtheria. L. Langeron and A. Breton.—p. 483.

Diabetes: Obliterative Arteritis with Formation of New Vessels.—Letulle et al. report the case of a woman, aged 60, who had had diabetes for the past fifteen years. Within the last five years, she had lost 30 Kg. (66 pounds) and a slight gangrene of the skin of the right ankle developed. It healed, however, after treatment with insulin. One year later the right great toe became gangrenous; in spite of twelve injections of 15 units of insulin, it had not healed two months later, at the time of her admittance to the clinic. Arterial pulsation was abolished in both feet, but the femoral pulsation remained perceptible. There was no edema of the legs. Other tests showed an inhibition of the circulation in the right leg from the knee downward. As the gangrene of the right great toe progressed and lymphangitis developed, amputation became necessary. During the operation it was noted that blood oozed continuously from the femoral artery, whereas it escaped in a rhythmic jet from the collaterals. Microscopic examination revealed the presence of numerous newly formed arteries within the obliterated lumen of the larger arteries. This occurrence is to be distinguished from the rapid formation of new conducting paths, through a thrombus caused by infection, as in thrombo-angiitis obliterans. The condition occurring in diabetes is often critical because of destruction of the regenerated tissue, which leads to spontaneous and progressive obliteration.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

53: 973-1019 (July 15) 1929

*Idiopathic Abscess in Right Temporosphenoid Region of Brain. A. Lemierre and R. Thurel.—p. 974.
Bradycardia in Icterus. L. Binet and L. Perlès.—p. 981.
Gastric Secretion Stimulated by Presence of an Einhorn Tube in Gastro-Intestinal Tract. C. Garin, R. Froment, Amic and Delorme.—p. 984.
Rapid Appearance of Sclerosis in Acute Gangrenous Processes of Lungs. F. Bezançon, E. Etchegoin, J. Célice and J. Delarue.—p. 991.
Regional Vaccination at Portal of Entry of Disease. P. Poincloux.—p. 999.
Regional Vaccination at Portal of Entry in Treatment of Gonorrheal Arthritis. Lian, P. Poincloux and M. Copélovici-Copé.—p. 1002.
Pigmentary Hypertrophic Cirrhosis of Liver Due to Intestinal Lambliasis. M. Labbé, F. Nepveux and L. Justin-Besançon.—p. 1007.
Cerebrospinal Meningitis: Treatment by Suboccipital Puncture. J. A. Chavany, P. E. Vannier and V. Bonan.—p. 1011.
Tetanus Following Subungual Hematoma: Treatment and Cure. Monziols and I. K. Bey.—p. 1016.

Idiopathic Abscess in Right Temporosphenoid Region of Brain.—Lemierre and Thurel's patient, a man, aged 33, came under their observation two weeks following the onset of symptoms. He suffered from intense headache in the fronto-orbital region, together with photophobia and vomiting. There was a constant desire for sleep, coincident with a retardation of mental processes. A slight stiffness of the neck was present together with paralysis of the right oculomotor nerve. The cerebrospinal fluid obtained by puncture was turbid and contained many altered leukocytes. Hypertension was present. Although the temperature was normal, the condition simulated purulent meningitis. Bacteriologic examination proved negative, however, the cerebrospinal fluid rapidly regaining a normal aspect. Two weeks later another attack with lymphocytosis occurred. The Bordet-Wassermann and colloidal gold tests gave positive reactions. Antisyphilitic drugs had been administered from the start but in spite of large doses the symptoms were in no way modified. The condition rapidly became worse and death ensued. Necropsy revealed only slight exudation from the meninges at the base of the brain. However, an encysted abscess, the size of an egg, was found in the right temporosphenoid region. The abscess was encapsulated by a membrane which bulged on one side by the formation of a second abscess. Cultures from the pus contained in the abscess revealed the presence of staphylococci. The other organs of the body did not show pathologic changes.

Paris Médical

2: 221-236 (Sept. 14) 1929

*Anterior Duodenal Fistulas: Treatment with Calcium Chloride. M. Patel and F. Carcassonne.—p. 221.
Decalcification of Bones: Treatment by Ingestion of Ossein. Maurin.—p. 226.

Anterior Duodenal Fistulas: Treatment with Calcium Chloride.—Patel and Carcassonne report the history of a man, aged 29, in whom a duodenal fistula developed eleven days following resection of a duodenal ulcer. The patient developed high temperature and increased pulse rate five days after the operation and his general condition became worse in spite of the administration of camphor in oil and caffeine with other stimulants. Eleven days after the operation, a large subcutaneous hematoma was noted, from which large amounts of duodenal juice escaped after opening. The dressings on the fistula had to be replaced every hour; forty-eight hours later the patient's condition had become critical. Every attempt to partake of nourishment was frustrated by vomiting. Twelve grams of calcium chloride in solution was then given, together with subcutaneous and rectal injections of dextrose solution and physiologic solution of sodium chloride. The wound was covered with zinc oxide ointment, which was renewed every hour. Gradually the condition improved and, forty-eight hours later, small and repeated amounts of food were tolerated. Along with the continued medication of calcium chloride, 15 units of insulin was given daily by intramuscular injection. Six weeks later the abdominal wound had closed and the patient had recovered strength and could arise. When seen six weeks later, he was in excellent condition and had regained 7 Kg. (15⅖ pounds).

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Presse Médicale, Paris

37: 1149-1164 (Sept. 4) 1929

*Effect of Insulin on Surgery in Diabetes. L. Lapeyre and J. L. Lapeyre.—p. 1149.
Bilirubin of Blood in Relation to van den Bergh Reaction. U. de Castro.—p. 1151.
Amebic Dysentery in Greece. N. Lorandos and G. Pangalos.—p. 1152.

Effect of Insulin on Surgery in Diabetes.—The Lapeyres distinguish between general surgical intervention and operations necessitated by complications of the disease. In the former, the administration of insulin in large doses makes the prognosis as it would be in similar but nondiabetic cases. In spite of this effect, diabetic gangrene, especially if complicated by concurrent infections, still presents a mortality of from 38 to 40 per cent, carbuncle 33 per cent and cellulitis 50 per cent.

37: 1165-1180 (Sept. 7) 1929

"Leiasthenia": Asthenia of Smooth Muscle. M. Loeper and J. Baumann.—p. 1165.
Structure of Hip Bone in Relation to Human Statics, to Pelvic Fractures and to Mechanism of Childbirth. A. Cobau.—p. 1167.
*Hemiplegic Ictus: Treatment with Acetylcholine Hydrochloride. M. Flipo.—p. 1169.
Chronic Cardiac Insufficiency: Treatment with Scillaren. D. V. Branisteanu.—p. 1170.

Hemiplegic Ictus: Treatment with Acetylcholine Hydrochloride.—Flipo reports the results in six patients and concludes that early treatment by subcutaneous injection is most favorable. The preparation used was synthetic acetylcholine hydrochloride, stabilized by the addition of dextrose and kept in sealed ampules. For use it is dissolved by the addition of twice distilled water. The injection of 0.1 Gm. in one patient and of 0.2 Gm. in four others was sufficient to cause recovery from the stroke within from twenty minutes to several hours. In one patient no effect was observed. He refrains from using the drug in cases presenting symptoms of cerebral hemorrhage because its vasodilator action would in these cases be harmful. The fact that restoration was not effected in one patient may be due, as Flipo believes, to tardy intervention after the stroke.

37: 1181-1196 (Sept. 11) 1929

*Immunization Against Tuberculosis in Infants by Ingestion of B C G Vaccine. B. Weill-Hallé and R. Turpin.—p. 1181.
Postoperative Syndrome of Pallor with Hyperthermia in Infants. P. Ingelrans and J. Minne.—p. 1184.
Poisoning with Hydrocyanic Acid. G. Ichok.—p. 1187.

Immunization Against Tuberculosis in Infants by Ingestion of B C G Vaccine.—Weill-Hallé and Turpin present the results of their experience, covering a period of

eight years, with 944 infants, of whom 549 were born and grew up in healthful surroundings and 395 in a tuberculous environment. Of the last, twenty-one children were suspected of having tuberculosis or bacteriologic proof of the disease was obtained, in spite of the administration of the vaccine. In two cases the grandparents, in four the mother and in eleven others the father had tuberculosis. In only three of the remaining six could the source of the tuberculous infection not be traced. The manifestations of tuberculosis were mild, except in two of the patients. Seven presented enlargement of the tracheobronchial lymph nodes; in four, suppuration of the lymph nodes was present and one had tuberculous nodules on the skin; in five others retardation of development with multiple enlarged lymph nodes was present. Weill-Hallé and Turpin stress the importance of the time of infection and the virulence of the bacilli. In twelve cases in which the vaccinated infant was exposed to infection from the time of birth, tuberculosis was contracted after six months, eleven months, two years, five months, and four months and seven months, respectively; in other cases the possibility of infection persisted. Except for one child, these infants are in good condition; the duration of the disease was shortened. These results, together with the demonstrated harmlessness of BCG vaccine, induce Weill-Hallé and Turpin to advise this method of protection against tuberculosis and favor the extension of its range to infants born in healthful surroundings, as well as those born in infected environments.

Revue Française de Pédiatrie, Paris

5: 293-422 (June) 1929

*Superiority of Concentrated Preparation of Vitamin C. P. Rohmer.—p. 293.
*Epidemic of Intestinal Infections in Infants at Warsaw. H. Brokman and J. Kolago.—p. 315.
*Unreliability of Dick Test in Nurslings. L. Ribadeau-Dumas, C. Zoeller and J. Chabrun.—p. 334.
*Treatment of Paralytic Talipes Equinus. M. Meyer and R. Robert.—p. 338.

Superiority of Concentrated Preparation of Vitamin C.—In the treatment of one nursling with scurvy, four nurslings with chronic digestive insufficiency and five with alimentary dystrophy refractory to the usual alimentary treatment, Rohmer mixed with their food a powder extracted from fresh cabbage in the absence of oxygen (according to the method of Bezssonoff). He states that this concentrated preparation of vitamin C has a specific therapeutic action in scurvy. Its action is definitely favorable in chronic digestive insufficiency; in this condition the concentrated preparation is superior to fruits and vegetables, which may increase the dyspepsia. In nurslings with alimentary dystrophy without digestive disturbances, the concentrated preparation of vitamin stimulates their growth.

Epidemic of Intestinal Infections in Infants at Warsaw.—Brokman and Kolago describe the epidemic of intestinal infections accompanied by bacteremia and toxemia that occurred during the summer of 1927 at Warsaw in infants aged less than 2 years. They summarize the course of the disease as follows: The first signs to appear were digestive disturbances. The stools became fluid, frequent, glairy and slightly sanguinolent. Ordinarily the number of stools in twenty-four hours did not exceed ten. In most of the cases vomiting of moderate intensity was noted two or three times a day. In some of the cases the attacks of vomiting occurred with great frequency whereas in other cases they were absent. The temperature fluctuated between 37 and 39 C. (98.6 and 102.2 F.). The temperature curve in the various patients was not uniform. In the early stage of the disease the condition of the infants was not alarming but after a few days, sometimes after ten days or several weeks, it suddenly became aggravated. The temperature rose and at the same time the vomiting became more frequent. The attacks of vomiting constituted the most characteristic symptom of this period of the disease. During this stage the intestinal signs decreased in intensity and occasionally the diarrhea stopped completely. The weight of the infants decreased 100 Gm. and even more daily. As a result of the dehydration of the organism the skin lost its elasticity. The infants became apathic, somnolent and torporific but rarely lost consciousness. The authors succeeded eleven times in demonstrating the presence of intestinal bacteria in the blood of the patients. The bacteria isolated from the blood did not present the same biochemical and serologic characteristics. In eleven cultures four were classified as belonging to the paracolon group, two to the paratyphoid C group, one to the paratyphoid A group and two to a group resembling the paratyphoid B and C groups and *Bacterium cholerae-suis*. Two were classified as belonging to the pseudodysentery group (Flexner), but their serologic properties did not correspond to the serologic properties of the bacteria in this group; these cultures were not homogeneous from the serologic standpoint. Between the cultures of the various groups there was a definite serologic resemblance. The clinical course of the disease was similar in all the cases, regardless of the type of bacteria isolated from the blood. In consideration of the symptoms these cases differ from all the clinical forms described up to the present. On the basis of their clinical and bacteriologic researches, the authors believe that the condition observed was a definite clinical form of intestinal infection caused by various bacteria.

Unreliability of Dick Test in Nurslings.—Ribadeau-Dumas et al. state that in nurslings a negative Dick reaction does not always indicate immunity to scarlet fever. In seven of twenty nurslings studied by them there was a discrepancy between the result of the Dick test and the degree of humoral immunity. In all these cases the Dick reaction was negative but the serums of none of the infants had a neutralizing action with regard to streptococcus toxin. Therefore, contrary to what is true in adults, in nurslings negative Dick reactions are not necessarily synonomous with humoral immunity to scarlet fever. The authors explain the discrepancy in nurslings between the result of the Dick test and humoral immunity to scarlet fever on the basis of the fact that the skin of infants is not as sensitive to bacterial toxins as is the skin of adults.

Treatment of Paralytic Talipes Equinus.—In cases of paralytic talipes equinus in which the paralysis is not complete, Meyer and Robert recommend the transplantation of a pedicled bone graft from the calcaneus to the posterior surface of the tibiotarsal joint. The advantages of this method of treatment over the classic method of arthrodesis are that it is less mutilating and may be performed in much younger infants.

Schweizerische medizinische Wochenschrift, Basel

59: 901-924 (Sept. 7) 1929

Eczema, Eczematoid Dermatitis and Torpid Ulcers as Complications of Injuries of Skin. W. Lutz.—p. 901.
*Influence of Sun Baths at High Altitudes on Blood Sugar Curve. J. von Deschwanden.—p. 903.
*Congenital Unilateral Graefe's Sign in Facial Myopathy: Mechanism of Graefe's Sign. J. Strebel.—p. 906.
Meckel's Diverticulum Containing Ascarides as Cause of Ileus. E. Villiger.—p. 909.
Simple Methods to Detect Minute Quantities of Mercury, Lead and Arsenic. E. Herzfeld.—p. 910.
Traumatic Lesions of Meniscal Apparatus of Knee Joint. C. Cornioley.—p. 912.
Basal Metabolism and Specific Dynamic Action of Proteins. C. de Montmollin.—p. 917.
Treatment of Itching Dermatoses. A. Schweitzer.—p. 920.

Influence of Sun Baths at High Altitudes on Blood Sugar Curve.—Von Deschwanden points out that, in many persons, the tolerance for carbohydrates is increased under the influence of the climatic conditions at higher altitudes. He investigated this problem by making tests on persons who had always lived in the high mountains, on those who had lived there for six months and on persons who had been under the influence of this climate only about twenty-four days. The author first investigated the influence of sun baths on the sugar content of the blood. Then he made dextrose tolerance tests and studied the blood sugar curve when the patients were not exposed to the sun. On another day the administration of dextrose was followed by a sun bath lasting one hour. And in the last experiment the patients were first given the sun bath and after that they received the dextrose. The observations during these experiments are summed up as follows: 1. Immediately after acclimatization in the high mountains the blood sugar curve of alimentary hyperglycemia shows a steeper rise, and a quicker fall, than in the lowlands. The peak of the curve is often higher than in the lowlands. 2. In persons who are acclimated, the islands of Langerhans show an increased and an accelerated production of insulin. In the native mountain population this condition is probably congenital. The blood

sugar curve of alimentary hyperglycemia shows a steeper ascent, a lower peak and a quicker descent than in the lowlands. 3. In some persons, however, even if their sojourn at the high altitudes lasts longer than six months, the function of the islands of Langerhans does not become adjusted to the climate. 4. Sun baths in the high mountains effect a decrease in the sugar content in acclimated persons and in natives. The opposite results that are noted in some persons are probably due to constitutional factors. 5. Sun baths stimulate the production of insulin. 6. Whether the amount of insulin is also increased under the influence of the sun cannot be definitely stated. 7. The increased tolerance for carbohydrates in the high mountains is proved in points 2 and 5.

Congenital Unilateral Graefe's Sign in Facial Myopathy.—Strebel describes the case of a man with congenital unilateral facial myopathy in whom Graefe's sign was noted. The pathologic conditions in this case and in a case of exophthalmic goiter illustrate the mechanism of Graefe's sign. If the orbicularis is paretic, or if as the result of myopathy it becomes atrophic, or if the action of this muscle is hindered by an exophthalmos, the levator palpebrae superioris will exert a stronger influence than the orbicularis and so produce the condition that is known as Graefe's sign. In short, this symptom is the result of an insufficiency of the orbicularis.

Clinica Pediatrica, Modena

11: 789-892 (Sept.) 1929. Partial Index

*Liver and Allergy: Hepatotherapy in Anergy to Tuberculosis. G. de Simone.—p. 789.
*Stimulating Action of Ultraviolet Rays on Development of Defense Powers Against Tuberculosis in Children. D. Blasi.—p. 832.

Liver and Allergy: Hepatotherapy in Anergy to Tuberculosis.—De Simone gave liver extract to thirty-one tuberculous children, aged from 3 months to 7 years, who were in a condition of anergy to tuberculin. Twenty-six became allergic. All the children had definite tuberculous lesions and they had been anergic to both bovine and human tuberculin. The following control tests were made: 1. Nontuberculous children with a repeated skin reaction received the same treatment as the tuberculous children. 2. Tuberculous children, anergic to tuberculin, were given other extracts instead of liver extract and then their skin reaction to tuberculin was determined. 3. In another group of tuberculous children, anergic to tuberculin, after liver extract had been given, skin reactions to several proteins, instead of tuberculin, were determined. The author concludes that in his cases hepatotherapy, used for a short period in anergic tuberculous children, restored the allergic condition. The allergy disappeared as soon as the administration of liver was discontinued. The extracts from other organs given to tuberculous children in an anergic state did not produce allergy.

Stimulating Action of Ultraviolet Rays on Development of Defense Powers Against Tuberculosis in Children.—A series of children, aged from 14 months to 9 years, were irradiated with ultraviolet rays by Blasi. Before the irradiation a Pirquet test was made. Each child received ten irradiations; the first one was very short, of about two minutes' duration. In this treatment, the anterior part and then the posterior part of the nude body were alternately exposed to ultraviolet rays at a distance of 60 cm. from the lamp. The interval between the first and the second irradiation was one day; the subsequent treatments were given daily and the duration of each exposure was increased two minutes a day, so that at the tenth treatment each child was irradiated for twenty minutes. One hour before the first irradiation and one hour after the last treatment, blood was taken from each fasting child, and the opsonic action of its serum on the tubercle bacillus was tested. The opsonic action of the blood serum of children with a positive Pirquet test, after ten ultraviolet irradiations had been given, was more marked than that of the serum of children with a negative Pirquet reaction. All children who were irradiated showed an increase in the percentage of phagocytes, as well as of the phagocytosed bacilli. The author believes that ultraviolet rays, by stimulating the process of phagocytosis, may be of great value in tuberculosis, especially nonpulmonary tuberculosis.

Gazzetta degli Ospedali e delle Cliniche, Milan

50: 741-776 (June 9) 1929

The Alkaline Diathesis. G. Norsa.—p. 741.
*Diabetes Mellitus Cured by High Voltage Roentgen Irradiation of Hypophysis. G. Boschi.—p. 744.
Neurosis Associated with Mitral Insufficiency. G. Galli.—p. 748.

Diabetes Mellitus Cured with High Voltage Roentgen Irradiation of Hypophysis.—Boschi's patient, an unmarried woman, aged 71, presented a marked glycosuria. She was using at the time an antidiabetic diet and insulin. She stated that for several years she had been subject to periods of polyuria and polydipsia. The sella turcica was slightly enlarged. Boschi suppressed insulin and prescribed a diet less restricted in quality but more restricted in quantity. He introduced a weekly fast day and some mild gymnastics commensurate with the grave condition of the patient. By this regimen he reduced the glycosuria considerably. At this point he began high voltage roentgen irradiation of the hypophysis. At the second sitting (a month after the first) he noted the complete disappearance of dextrose in the urine. He has examined the patient's urine several times since, and there has been no glycosuria. The patient is well and strong. The author emphasizes that he does not rely solely on this case in recommending a careful roentgen examination of the sella turcica in almost all cases of diabetes. Likewise, he advises that even slight changes in the sella turcica or the hypophysis be sought for and assigned serious importance. He does not say that roentgen treatment is always indispensable or preferable, but he has reason to think that in some cases it may be preferable, or it may be associated with strictly medical treatment.

Policlinico, Rome

36: 281-332 (June 1) 1929. Medical Section

Changes Produced in Human Organism by Minimal Doses of Salts of Oliogodynamic Metals. G. Sabatini.—p. 281.
Acid-Base Equilibrium of the Blood. G. Barbèra.—p. 292.
*Lactic Acid Content of Exudates and Transudates. G. Margreth.—p. 314.
Eosinophilia of Pleural Exudates. I. Cappellini.—p. 320.

Lactic Acid Content of Exudates and Transudates.—Margreth emphasizes that the quantity of lactic acid present in pathologic organic fluids has been studied very little; yet the problem is deserving of attention since researches on the lactic acid content may possibly furnish a new criterion for the differential diagnosis of exudates and transudates. Such studies present also an opportunity to learn the various modes of behavior of sugar in effusions of inflammatory origin as compared with those associated with stasis, since lactic acid, as is well known, represents one of the most important intermediate products of carbohydrate metabolism. From his researches, it became apparent that, whereas transudates have lactic acid values equal to or only slightly higher than those of the blood, the lactic acid content of the exudates is always considerably higher and often very much higher than that of the blood. His results do not vary materially from those secured by Scheller as reported in 1926.

Riforma Medica, Naples

45: 1103-1131 (Aug. 17) 1929

Calcium and Hyperuricacidemia. G. Izar and F. Pellegrino.—p. 1103.
Endocrine System in Congenital Athyreosis. G. Pennetti.—p. 1104.
*Meinicke Clarification Test Compared with Meinicke Turbidity Test and Wassermann Test. F. Cantani.—p. 1110.
Pirquet Skin Test: Value for Early Diagnosis of Pulmonary Tuberculosis. D. A. Mazzolani.—p. 1113.

Value of Meinicke Clarification Test.—In a first series of 306 serums, to which Cantani applied three different tests, he obtained these results: Wassermann test, positive, 102; Meinicke turbidity test, positive, 113, and Meinicke clarification test, positive, 129. Calculating the "index of specific sensitiveness," which better than any other numerical expression sets forth the comparative value of the several tests, he found that the Wassermann test had given a specific positivity of 53 per cent and an aspecific positivity of 1 per cent; the Meinicke turbidity test, 55 and 1.25 per cent, respectively, and the Meinicke clarification test, 60 and 1.75 per cent, respectively. From his researches as a whole, Cantani feels justified in concluding that the Meinicke clarification test, though the technic is more delicate than that of the Meinicke turbidity test, is

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superior in sensitiveness and not inferior in specificity to the Meinicke turbidity test or to the Wassermann test. The Meinicke clarification test can be applied with advantage to turbid, hemolytic and icteric serums but not to inactivated serums.

Semana Médica, Buenos Aires

36: 581-660 (Aug. 29) 1929

*Chronic Gastritis of Tonsillar Origin. H. J. d'Amato.—p. 581.
Aleukemic Lymphadenosarcoma. A. E. Bianchi and B. S. Acevedo.—p. 590.
Simple Roentgen Examination in Localization of Tuberculous Foci in Some Cases of Tuberculosis of Kidney. J. Salleras.—p. 604.
*Protein Skin Reactions in Asthma in Children. J. M. Macera and M. T. Vallino.—p. 605.
Exstrophy of Bladder. A. J. Pavlovsky and R. Savage.—p. 615.
Double Renal Pelvis and Double Ureters of Right Side: Uropyonephrosis. G. Vilar.—p. 620.
Course of Pharmacology and General Therapeutics: Plan for Its Development. M. Soto.—p. 622.
Necrotic Plaque of Heel in Diabetic Patients. F. Puchulu and J. A. Pángaro.—p. 626.
Leptothrix Mycosis of Lymph Nodes. D. Vivoli.—p. 629.
Fear as Cause of Appearance of Mental Disturbances Both in Husband and in Wife. C. O. Ferrër.—p. 635.
Surgery in Trauma and Modern Treatment of Fractures. L. O. Zeno.—p. 637.
Urinary Lithiasis in Early Childhood. J. Barbuzza.—p. 639.
*Whooping Cough: Treatment with Ether by Rectum. H. Magliano.—p. 643.

Chronic Gastritis of Tonsillar Origin.—D'Amato reports four cases of chronic gastritis which gave the syndrome of gastric or duodenal ulcer. The differentiation between the two conditions was made by roentgen examination. From the duodenal contents *Staphylococcus aureus* was recovered. The author proved that the condition was caused by tonsillar infection. In all cases tonsillectomy gave excellent results. Cultures made from the tonsils gave *Staphylococcus aureus*. The author found by experiments in animals that this staphylococcus causes lesions on the mucosa of the stomach. The author believes that *Staphylococcus aureus*, acting for a long time on the walls of the stomach and duodenum, may produce ulcers. He also believes that in all gastric disturbances careful examination of the tonsils is indicated and that all cases of chronic gastritis associated with chronic tonsillitis may be cured by tonsillectomy.

Protein Skin Reactions in Asthma in Children.—Macera and Vallino in their study on asthma and anaphylaxis made 3,591 skin tests, of which 237 were positive. One hundred and seventy-one of these skin reactions were in children, aged from 3 to 14. The children did not exhibit any disturbances during the treatment. In all these patients, tonsillar and nasal lesions did not play a rôle. Roentgen therapy, ultraviolet rays, hemotherapy and other treatments had failed. In seven of these children, desensitization with the proteins to which they gave the most intense reaction was obtained. Marked improvement was noted in three of these seven patients. They, however, were reaching the age of puberty (from 12 to 14); two were slightly improved and in two, the treatment failed. The skin tests made for the investigation of the patient's condition produced marked improvement in one patient and slight improvement in three. The author concludes that the treatment of asthma by means of protein skin reactions, though it is of long duration and expensive, should be tried in all patients when all other treatments have failed. In the author's cases the treatment gave its best results in the cases of asthma due to anaphylaxis. In these cases the skin reaction pointed out the appropriate desensitization and complete recovery was obtained with the treatment.

Whooping Cough: Treatment with Ether by Rectum.—Magliano states that he has obtained good results with enemas of liquid petrolatum containing 20 per cent of ether in hundreds of children with whooping cough. He never observed signs of irritation of the bowel to the enema. This enema can be used even in a dose which produces a superficial narcosis. To support this opinion, the author relates that he prescribed for a brother and sister, aged 5 and 8, respectively, 8 cc. and 10 cc. twice a day of a 20 per cent solution of ether in liquid petrolatum. The pharmacist, by mistake, mixed 100 cc. of ether and 20 cc. of liquid petrolatum. The first enema given produced somnolence in the girl and narcosis in the boy, who slept two hours with good breathing and good pulse. The cough disappeared almost entirely in both children. The author has also used ether enemas with good result in cases of bronchopneumonia with many foci and with imminent asphyxia. The ether modified the bronchial secretions and had a stimulating and tonic effect on the heart.

Beiträge zur klinischen Chirurgie, Berlin

147: 1-160 (July 13) 1929

*Diagnosis and Treatment of Acute Necrosis of Pancreas. P. Walzel.—p. 1.
*Acute Necrosis of Pancreas. F. Kerschner.—p. 14.
Transduodenal Anastomosis of Cyst of Pancreas with Duodenum. F. Kerschner.—p. 28.
Nitrous Oxide Anesthesia. H. Hauke and J. Beitz.—p. 34.
Biology of Skin Transplants. E. Melchior.—p. 45.
*Esophagoplasty: Implantation of Segment of Colon. A. Rudolf.—p. 53.
Operation for Pendulous Breast. F. Schreiber.—p. 56.
Relation of Disease to Trauma. K. Gütig.—p. 60.
*Function of Pineal Body. R. Demel.—p. 66.
Puncture of Corpus Callosum in Chronic Hydrocephalus. L. Heidrich.—p. 71.
Spina Bifida Occulta with Sacral Meningocele. C. Springer.—p. 75.
*Relation of Extent of Resection of Stomach for Gastric Ulcer to Duration of Cure. H. Finsterer.—p. 78.
Results of Operative Treatment of Gastritis. F. Neugebauer.—p. 86.
Primary Resection of Jejunal Ulcer Perforated into Free Peritoneal Cavity. A. Fromme.—p. 111.
*Postoperative Peptic Ulcer. F. Schwarz.—p. 116.
Perforation of (Simple) Ulcer of Ileum into Colon. A. König.—p. 133.
*Real and Apparent Incarceration of a Hernia as a Complication of Disease Elsewhere in Body. K. Gütig.—p. 138.
Aneurysm of Renal Artery. H. Kment.—p. 144.
Deep Seated Lipoma and Angiolipoma of Gluteal Region. H. Küttner.—p. 151.
Metastatic and Spreading Suppuration in Lesser Pelvis. E. Haim.—p. 156.

Diagnosis and Treatment of Acute Necrosis of Pancreas.—Among forty patients, thirty-one of whom were operated on by Walzel, only two were found to be free from biliary disease. As a rule, obstruction of the bile duct is the causative agent in acute necrosis of the pancreas as compared to chronic pancreatitis, which is incited by way of the lymphatics. The diastase test of Wohlgemuth ranks foremost as a guide in the diagnosis of the disease and Walzel considers the technic of surgery far behind the advance made within the last two years in chemical methods of diagnosis. The statement in medical literature that nonoperative cases show a mortality of 90 per cent and operative ones a mortality of 60 per cent is not corroborated by Walzel who, in the course of three reports, has increased the figures from 45 per cent mortality for his first cases to one of 66 per cent for his entire experience. Within the last two years 465 patients were operated on at his clinic for disorders of the gallbladder and bile ducts. In relation to this, forty cases of acute necrosis of the pancreas were observed, in thirty-one of which operation was performed. In only two of these could no connection with a biliary disease be proved. Four patients in whom the diagnosis was established refused operation; two of these developed a pseudocyst of the pancreas and in one nearly two thirds of the pancreas was resected. Recovery was effected in spite of concurrent diabetes. The other two patients died; necropsy confirmed the diagnosis. A man, aged 68, died three days after admission to the hospital; the entire pancreas was shown to be necrotic. In another patient colostomy was performed in spite of recognition of the necrosis; six weeks later operation was necessitated on account of severe biliary colic, and two months following this intervention the colostomy opening was closed. Recovery ensued. The same was true of two patients operated on two and three weeks after the appearance of the acute symptoms which led to the recognition of the disease. In one case cholecystectomy and drainage of the common bile duct was performed; in the other, an abscess of the pancreas with sequestrums was evident. On the basis of the literature on the subject and the results observed in nine patients without operation or with delayed surgical intervention, Walzel advises conservative treatment.

Acute Necrosis of Pancreas.—Kerschner points to the high operative mortality (70.7 per cent) in forty-one patients operated on since 1910. Of these, only three patients were operated on between 1910 and 1920, thirty-eight within the last eight years. The rare incidence of this disease during the years of the war and the ensuing period of starvation is coincident with the observation that thirty-four of the patients (82.9 per cent) were obese after the war. The greater proportion of women

stricken (13.28 or 31.7 per cent to 68.3 per cent) in Kerschner's patients conforms to the proportion noted in the literature. In three cases, evidence of concurrent involvement of the gallbladder and bile ducts could not be found; of the remaining thirty-eight, fourteen (36.8 per cent) presented biliary calculi, four of which (10.5 per cent) were found in the duodenal papilla; twenty-one suffered from choledocholithiasis. In three cases cholecystitis without concretions but with congestion of bile in the gallbladder and bile ducts was present. In many cases cholangeitis was concurrent. The proportion of gallbladder operations in relation to acute necrosis of the pancreas for the ten year period 1910 to 1920 is 1.2 per cent; for the last eight years it is 5.8 per cent. Corroboration of the clinical observations on the gallbladder and the bile ducts was given in the history of most of the patients in whom typical gallstone colic had occurred; others complained of indefinite pain in the upper region of the abdomen and stomach. Many patients had been under treatment for years. The clinical symptoms were characterized by the regurgitation and vomiting of fluid containing bile; the skin and sclera were more or less icteric, but in later stages the skin was often cyanotic and the extremities cool. The pulse rate varied from 100 to 140; the pulse was small and in some cases not perceptible in the radial artery. The temperature was usually normal or subnormal, but rarely subfebrile. The upper portion of the abdomen was greatly distended and especially painful on pressure in the region of the umbilicus or gallbladder. In many instances the patient complained of pain radiating toward the shoulder, the heart or under the left rib. In one case the pain was most severe in the region of the left kidney. Distention of the entire abdomen by gas was evident in most cases. Often complete intestinal obstruction occurred. The urine often contained sugar and albumin, sometimes bile pigment. The blood sugar was increased; likewise the diastase content of the blood and urine. Of these forty-one cases, the diagnosis of necrosis of the pancreas or acute pancreatitis was definitely made or assumed in only seventeen (41.4 per cent). In eight cases acute cholecystitis, another eight times intestinal obstruction, three times a perforated gastric ulcer and in five cases peritonitis of unknown origin were diagnosed. Of seven patients operated on in early stages of the disease only one succumbed ten days after the operation, to purulent pneumonia, which indicates that the prognosis in surgical intervention in the early stages is favorable. The technic consists of opening the capsule and draining the pancreas in one or more places, usually by way of the gastrocolic ligament or the mesocolon. In fifteen patients simultaneous operation on the biliary tract was performed with recovery in 53.3 per cent of the cases. Kerschner considers early recognition and operation essential, coincident with surgical treatment of a concurrent biliary disorder. The late stage of the disease presented by patients who came under observation was responsible for the high operative mortality.

Esophagoplasty: Implantation of Segment of Colon.—Rudolf's patient, a woman, aged 24, had been suffering from a complete stricture of the esophagus. Two years previously he had performed gastrostomy by Witzel's method. Esophagoplasty was done in four stages, part of the cecum, the colon ascendens, the hepatic flexure and the proximal end of the transverse colon being used. Although one and one-half years was necessary for the completion of the treatment, the result was satisfactory, the patient having gained 24 Kg. (53 pounds).

Function of Pineal Body.—Demel reports the results of removal of the pineal body in four 1 month old rams and observation of these animals for one year. As compared to the controls the horns of the animals operated on were inhibited in their development. Their hoofs did not appear as worn as the hoofs of the control animals. Another characteristic was the greater length of the wool in the animals without a pineal body; a test revealed also a greater elasticity of the wool. The body temperature was considerably lowered. Necropsy revealed a marked deficiency of fatty tissue which explained the lower weight. On the basis of his experiments and a review of the literature on the subject, Demel infers that the pineal body may influence the development of secondary sexual characteristics and that tumors which destroy its parenchyma cause inhibition of these characters.

Relation of Extent of Resection of Stomach for Gastric Ulcer to Duration of Cure.—On the basis of his personal experience with 103 patients in whom extensive resection was performed (in thirty-one cases following a relapse), Finsterer advises continuation of this radical form of treatment.

Postoperative Peptic Ulcer.—Schwarz reports the case histories of thirty-four patients and concludes that recurrence of peptic ulcers may be avoided by extensive resection and the use of absorbable sutures. In the treatment of postoperative peptic ulcer he recommends extensive resection of the stomach together with the anastomosis and the ulcer. In inoperable cases resection of the antrum may alleviate the condition. He rejects a second gastro-enterostomy and considers a simple resection of the ulcer inadequate.

Real and Apparent Incarceration of a Hernia as a Complication of Disease Elsewhere in Body.—On the basis of his personal experience, Gütig points to the frequent occurrence of secondary incarceration of hernias due to disease, the focus of which may be far removed from the abdomen. As illustrative of a type causing increase of peristalsis and distention of the intestine with gas, the case history of a physician, aged 32, is given. Digital examination of the rectum following radical operation of the hernia led to the discovery of an inoperable carcinoma. A second group with symptoms of incarceration is found in influenza with peritoneal involvement. A third type may be ascribed to intraperitoneal hemorrhage, such as occurs in a tubal pregnancy. As a last type Gütig presents the case history of an obese woman, aged 64, with nephritis. Four years previously she was operated on for an incarcerated umbilical hernia. Several hours before operation a painful swelling under the old scar was noted and a diagnosis of incarcerated recurrent hernia was made. At operation, however, a constriction of the intestine was not found. After reposition of the intestine and closure of the wound, recovery was effected. Collateral paralysis of the intestine caused by nephrolithiasis had been responsible for the condition.

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Deutsche medizinische Wochenschrift, Berlin

55: 1491-1534 (Sept. 6) 1929

Present Status of Various Forms of Irradiation for Treatment of Cancer. H. Holthusen.—p. 1491.
Bacteriologic Control of Convalescents from Scarlet Fever. U. Friedemann and H. Deicher.—p. 1496.
Diagnostic Value of Electrocardiography. H. Sachs.—p. 1497.
Clinical Significance of Electrocardiography. E. Mosler.—p. 1501.
Methods and Results in Encephalography. B. Badt.—p. 1503. C'td.
*Postmortem Bacteriologic Examinations in Pneumonia. K. Habbe.—p. 1506.
Immunity Against Syphilis and Symptomless Syphilitic Superinfection in Man. R. Prigge and E. von Rutkowski.—p. 1508.
*Polyneuritis During Pregnancy with Three Postpartum Relapses. K. Pákozdy.—p. 1509.
Clinical Aspects and Treatment of Mucosus Otitis. *W. Kindler.—p. 1511.
Prophylaxis of Anemia in Premature Infants. N. Wundt.—p. 1512.
Plastic Operation of Faces. Schlesinger.—p. 1512.

Postmortem Bacteriologic Examinations in Pneumonia.—Habbe examined the lung tissue and the heart blood of persons who died of pneumonia. He describes the method which was employed for these researches. Concerning the results of the bacteriologic examination of the heart blood, he states that in those instances in which they were not negative, they were identical with those of the lung, and he disregards them in his tabulations. His studies were made in 270 cases, 131 cases of lobar pneumonia, ninety-three cases of bronchopneumonia, twenty cases of pneumonia in whooping cough, twenty cases of pneumonia in influenza and six cases of pneumonia in measles. The author gives tabular reports, showing the various types of bacteria that were found. Pneumococci and streptococci were detected in the majority of cases. *Pneumococcus mucosus* was detected nearly exclusively in lobar pneumonia, whereas in bronchopneumonia this type was found only in a few exceptional cases. The author thinks that the significant factors in the development of lobar pneumonia are the immunity condition of the patient's organism and the type of bacteria. However, bacteriologic examinations on living patients will be necessary to clear up the problem entirely.

Polyneuritis During Pregnancy with Three Postpartum Relapses.—Pákozdy points out that the toxic polyneuritis which develops during pregnancy or during the puerperium is comparatively rare. He differentiates this type from the

infectious polyneuritis that often develops in puerperal fever or from the one which results when inflammatory processes in the pelvis affect the nerve trunks. He then gives the detailed report of one case of toxic polyneuritis. A woman, aged 28, was pregnant five months when she noticed that the fingers of both hands were becoming paralyzed. The disturbance was painless, but it spread and soon reached the elbows. During the following weeks the lower extremities likewise became affected. In the sixth month, the pregnancy was interrupted and several weeks after, the patient recovered. Three years later she had a relapse. However, this time the symptoms were not of the same severity, and the woman recovered after two and one-half months. A second relapse occurred eighteen months later. This attack was again more severe. The paralysis even affected the accommodation of the eye, so that the vision was disturbed. The patient also complained of pains in the chest. After five months all the symptoms had again disappeared. Eighteen months after that the woman had a third relapse. This time the disturbances were somewhat less severe than in the preceding attack. The fact that the relapses occurred, although the patient was not pregnant, seems to indicate that after the first attack the patient's nervous system had retained a hypersusceptibility not only to the toxins which develop during pregnancy but also to other toxic agents.

Klinische Wochenschrift, Berlin

8: 1649-1696 (Sept. 3) 1929

Changes in Metabolism During Menstruation. H. Eufinger.—p. 1649.
Differences in Reactions of Healthy and of Diseased Persons to Ergotamine, Belladonna and Scopolamine. W. Brack.—p. 1652.
Influence of Hormones on Distribution of Sugar and on Permeability of Cells in Animal Organism. R. Siegel.—p. 1655.
*Hypoglycemic Coma with Ketonuria. A. Gottschalk and A. Springborn.—p. 1660.
Practical Significance of Bactericidal Index of Blood. G. J. Pfalz.—p. 1661.
*Electrocardiographic Observations on Course of Acute Myocarditis Following Influenza. W. Dressler and A. Kiss.—p. 1664.
Criticism of So-Called Mineral Salt Therapy. F. Mainzer.—p. 1666.
Experimental Syphilis of Central Nervous System. I. L. Kritschewski and K. A. Friede.—p. 1667.
Increase in Formation of Antibodies After Administration of Oxyquinoline Sulphate. W. Weichardt.—p. 1669.
Experimental Anemia Caused by Bartonella Muris. B. Klein and P. Soliterman.—p. 1669.
Climacteric Hirsutism. Esau.—p. 1670.
Spontaneous Diffuse Leptomeningeal Hemorrhage. O. Hess.—p. 1672.

Hypoglycemic Coma with Ketonuria.—Gottschalk and Springborn report the case of a man, aged 29, who for several years had been treated for diabetes mellitus. However, in spite of the fact that correct dosage with carbohydrates and with insulin had established a normal content of sugar in the blood, and had made the urine entirely free from sugar, ketonuria was never completely absent. At times the diabetic symptoms became again more severe, and when necessary the patient received hospital treatment. The quantity of insulin had to be increased occasionally until in May, 1929, the daily number of units had reached 80. When this amount was administered the patient was free from glycosuria. In June the patient fell into a condition of coma. When he was brought to the hospital he had been unconscious for thirty hours. During this time he had received no nourishment, but the insulin injections had been continued. The breath of the patient had a strong acetone odor and Legal's as well as Gerhardt's test for acetone in the urine were both strongly positive. However, all other symptoms of diabetic coma were absent. The urine was free from sugar. The coma had been preceded by repeated attacks of fainting, and the patient's breathing was different from that which is usually observed in diabetic coma. The possibility of a hypoglycemic coma was considered, and the patient was given an injection of 400 cc. of a 50 per cent solution of dextrose. This treatment gave favorable results. Thirty minutes later the patient regained consciousness. From this case the authors conclude that if coma develops in a patient who had received sufficient insulin, and in whom the blood sugar is not sufficiently increased, so as to indicate diabetic coma, a dextrose injection should be given, even if ketonuria exists. They think that a dextrose injection is not harmful even in cases of a genuine diabetic coma. On the contrary, they consider it a favorable preparation for the injection of a larger amount of insulin. The authors question the correctness of the theory that insulin has a double point of attack, namely, the carbohydrate metabolism and the fat metabolism. In the case that was observed by the authors, a severe ketonuria became evident at the time when the insulin exerted its strongest influence. From this they conclude that insulin cannot have a direct influence on the fat metabolism.

Electrocardiographic Observations on Course of Acute Myocarditis Following Influenza.—Dressler and Kiss report the case of a man, aged 21, who contracted influenza. In previous years he had often suffered from angina. Two weeks after his recovery from influenza, he had pains in the chest, difficulty in breathing and repeated attacks of fainting. He gradually became weaker and was brought to the hospital. The first examination revealed no marked abnormalities, but electrocardiographic examination indicated a complete heart block. The auricular rhythm had a frequency of 105, while the rhythm of the ventricle was only 36. Complete rest soon restored the normal function. However, a few days later, the patient complained again of irregularities of the heart. Electrocardiographic examination showed auricular extrasystole, disturbances in the conducting system and occasional ventricular extrasystoles. These disturbances indicate a diseased condition of the conducting system. Simultaneously there existed a feeling of congestion in the chest, a general weakness and a minor increase in the temperature. The diagnosis was influenzal myocarditis. The authors point out that this disease is comparatively rare, but an early diagnosis is necessary in order to take prophylactic measures against more severe disturbances. Electrocardiographic examination is the most effective aid for a correct diagnosis.

Medizinische Klinik, Berlin

25: 1419-1456 (Sept. 13) 1929

Pathogenesis of Parodontitis. J. Citron.—p. 1419.
Clinical Aspects of Parodontitis. Loos.—p. 1423.
Treatment of Chronic Articular Rheumatism. J. Kretz.—p. 1426.
*Therapeutic Value of Intramuscular Injections of Pepsin. E. Moser.—p. 1429.
Influence of New Theory of Pathogenesis of Pulmonary Tuberculosis on Diagnosis and Treatment of This Disease. O. Laufer.—p. 1431.
Serologic Reactions in Syphilis, Especially Kahn's Test and Hecht's Active Method. H. Hecht and H. Haber.—p. 1434.
Technic and Value of Thiersch's Method of Skin Grafting. Hayward.—p. 1435. C'td.
Therapeutic Value of Normal Calcium Gluconate. R. Korbsch.—p. 1437.

Therapeutic Value of Intramuscular Injections of Pepsin.—Moser gave intramuscular injections of pepsin to persons with malignant tumors before and after operative treatment. An influence on the cancerous growth was not noted. However, the general condition of these patients improved markedly. The pepsin injections brought more favorable results in the treatment of ulcers and wounds. The author reports the case of a woman, aged 51, who, on account of myoma, had received roentgen irradiations. Because the hemorrhage did not cease, an operation was performed and the uterus was removed. After the operation the irradiations were continued. During one of these treatments the woman fainted and fell on the apparatus. The resulting burns on her neck and chest healed within six months. However, the tension produced by the scars was so severe that the patient was not able to lift her head entirely. In the scar from the laparotomy she soon developed a roentgen ulcer, which steadily increased in size. The author now began to give pepsin treatments. First the patient was given an injection of 0.3 cc. of a solution of pepsin into the gluteal muscle. Later the quantity was increased to 0.5 cc. and then to 1 cc. The treatments were given after intervals of from two to four days. In all, the patient received forty-four injections. The roentgen ulcer healed gradually. At the same time the woman complained of pains in the scars on the chest and neck and she also stated that she could lift her head better than before. Careful observation of these scars revealed that they were becoming gradually softer and more smooth, and the patient was soon able to carry her head erect. The author reports another case in which pepsin injections exerted a favorable influence on refractory wounds. By testing this treatment on himself he noted that it effected improvement in an existing parodontitis. He further discusses the attendant phenomena of this therapy. In the woman who underwent the pepsin treatment for the roentgen ulcer, no harmful effects

became evident. Other patients and the author himself occasionally noted disagreeable results such as local swellings and rise in temperature, and also cardiac disturbances and chills. Observations on himself convinced the author that it is better to make repeated injections into the tissue which is still inflamed from previous treatment than to alternate from one side to the other. The author thinks that the pepsin treatment is not merely a form of protein therapy, but that it exerts a specific influence.

Münchener medizinische Wochenschrift, Munich

76: 1493-1536 (Sept. 6) 1929

Improvement in Technic of Operation for Myoma of Uterus. H. Sellheim.—p. 1495.
*Clinical Significance of Immunity Against Tuberculosis. H. Selter.—p. 1498.
Pathogenesis, Diagnosis and Treatment of Insidious Septic Infections. H. Kämmerer.—p. 1500.
Virulence of B C G and Immunity Against Tuberculosis. E. A. Schnieder.—p. 1506.
Four Years' Experience with Cultivation of Tubercle Bacillus in Diagnosis of Tuberculosis. J. Hohn.—p. 1508.
*Statistical Report on Results of Operations in Free Perforated Gastroduodenal Ulcers. H. Paugger.—p. 1508.
*Expulsion of Tapeworms by Means of Duodenal Sound. S. Margulis.—p. 1510.
Demonstration of Methenamine in Cerebrospinal Fluid. G. Jung and K. Voit.—p. 1511.
*Irradiated Yeast as Means to Increase Quantity and Vitamin Content of Mother's Milk and of Cow's Milk. M. Wachtel.—p. 1513.
Electro-Ionic Therapy of Cicatricial Keloids. F. Wirz.—p. 1515.
Differential Diagnosis of Hematocele in Tubal Pregnancy. E. Mertens.—p. 1516.

Clinical Significance of Immunity Against Tuberculosis.—It is pointed out by Selter that in nearly all recent investigations on tuberculosis, the existence of an immunity to tuberculosis is considered as an established fact. On the other hand, many pathologists question the actuality of an immunity against tuberculosis. The author emphasizes the fact that tuberculin susceptibility cannot be identified with immunity. He then gives a short review of the investigations of several authorities on immunity in tuberculosis, and he also explains his own theory. On the basis of his experiments he concludes that immunity may exist in an animal which is infected with tuberculosis. However, this immunity decreases or disappears entirely the moment the tuberculous infection becomes active and spreads beyond the primary focus. During this stage there may develop new tuberculous processes either by metastasis or by external reinfection. The author further discusses immunization experiments with vaccines of living tubercle bacilli. He mentions the researches of Calmette and several others, and he reports the results of his own experiments on guinea-pigs. However, he stresses the fact that the results of experiments on animals cannot always be applied to man. He concludes that in human beings it is as yet not possible to induce immunity against tuberculosis by means of a specific treatment. A tuberculous process that has become active, or a new infection, should be counteracted by a nonspecific treatment. Sufficient rest, strengthening of the general condition and eventually application of physical methods will help the patient to regain his lost immunity.

Results of Operations for Free Perforated Gastroduodenal Ulcers.—Paugger reports the cases of eighty-nine patients with free perforated gastroduodenal ulcer. All but four older patients received surgical treatment. Eight patients had never before suffered from disturbances of the stomach. The pain which accompanies the perforation is the pathognomonic symptom of this disease. The time of its occurrence could definitely be stated in eighty-eight cases. The author further mentions factors that are of significance to differentiate this condition from appendicitis, cholecystitis, pancreatitis and the covered perforation. She then describes the technic of the operation that was employed in the majority of cases. A tabular report shows how many hours elapsed between the perforation and the operation and also the mortality in each group. Concerning the localization of the ulcer, in eighty-five cases it was near the pylorus; in two cases it was in the stomach and in two instances in the duodenum. The ages of the patients varied from 15 years to 75 years. Only six of the eighty-nine patients were women. The author stresses the great significance of a timely operation. The fact that the results which were gained in this clinic appear favorable when compared with other statistics is explained as being due to the circumstance that most patients were sent to the clinic early. In most cases the operation could be performed during the first six or twelve hours after perforation had taken place.

Expulsion of Tapeworms by Means of Duodenal Sound.—Margulis employed the duodenal sound for expulsion of tapeworms in forty patients. In all instances the method was successful. It is pointed out that the treatment should be preceded by a thorough cleansing of the bowels. On the evening preceding the administration of the teniacide, the patient is given a dose of sodium sulphate, and in the morning an enema is advisable. Then the duodenal sound is introduced. As a teniacide the author employed aspidium. In all the patients treated in this manner, the head of the parasite was evacuated. In one case two heads were found and in another case four. After this method had been employed successfully in numerous adults, the author employed it likewise in five children aged between 5 and 13 years. He asserts that the introduction of the duodenal sound caused no special difficulties in these cases. The author comes to the conclusion that this treatment is the method of choice for expulsion of tapeworms. A great advantage lies in the fact that the required dose of teniacide is considerably smaller than in case of peroral administration. This is of special significance in children.

Irradiated Yeast as Means to Increase Quantity and Vitamin Content of Mother's Milk and of Cow's Milk.—Wachtel reports that when cows were fed irradiated yeast the quantity of milk increased considerably, and that this milk contained larger amounts of vitamins B and D. Its antirachitic quality was demonstrated in experiments on rats. The author concludes that, if this method of prophylaxis of rickets could be generally employed, the problem would be considerably simplified. All other aids for the prevention and treatment of rickets, such as medication with cod liver oil, or with viosterol preparations, irradiation of the milk or of the cows would become superfluous. Nursing mothers could likewise eat the irradiated yeast.

Wiener klinische Wochenschrift, Vienna

42: 1153-1180 (Sept. 5) 1929

Noguchi's Luetin Reaction and Its Modifications: Indications for Its Application and Its Practical Value. H. Planner.—p. 1153.
Nature of Fundamental Joint Reflex and Its Practical Significance. G. Stiefler.—p. 1155.
Prognosis in Resection of Stomach for Cancer. H. Finsterer.—p. 1157.
*Acute Toxic Glycosuria and Its Relation to Diabetes Mellitus. H. Strasser.—p. 1159.
*Treatment of Acute, Localized Phlebitis in Lower Extremity. H. Deutsch.—p. 1 62.
Symptomatology and Treatment in Ovarian Dysfunction. P. Werner.—p. 1164.
Pathogenesis, Clinical Aspects and Treatment in Pyelitis and in Pyelonephritis. H. Rubritius.—p. 1167.
Dilatation of Superior Vena Cava and of Innominate Veins and Edema of Mediastinum in Cardiac Insufficiency. A. Arnstein.—p. 1168.
Idem. E. Granström.—p. 1168.

Acute Toxic Glycosuria and Its Relation to Diabetes Mellitus.—Strasser reports the case of a man, aged 53, who asked medical advice on account of cardiac disturbances. The patient was obese. Examination revealed dilatation of the heart and occasional extrasystoles, congestion of the liver and kidney, and edema in the region of the ankles and of the sacrum. The urine was free from sugar. Because ambulatory treatment did not bring betterment, the patient came to the hospital to undergo a salyrgan treatment. Diuresis set in after the second injection. The quantity of urine increased, as did its specific gravity. Examination of the urine revealed a sugar content of 5 per cent, or 225 Gm., a day. The patient's temperature rose to 102.5 F. His throat was reddish and he had difficulty in swallowing. The blood sugar was increased. Hypertension and a polymorphonuclear leukocytosis were also detected. The salyrgan injections were not discontinued. The quantity of urine decreased again, but the sugar content was still high even after a diabetic diet had been introduced. Disturbances in the functioning of the pancreas could not be detected. Insulin injections in combination with a restricted diet restored the carbohydrate metabolism to normal. Soon the insulin injections could be omitted. However, when the patient returned to his former

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diet, a mild form of glycosuria recurred. A dextrose tolerance test two months later still indicated pathologic conditions. After six months another test was made, which revealed a normal metabolism. The author advances evidence that the patient was not affected with a genuine diabetes. Before the patient came to the hospital the urine had been examined several times, and the tests for sugar had always been negative. The tolerance test six months after his recovery and several examinations after that gave additional proof that the patient was not affected with diabetes. The author discusses three factors as the possible causes of acute, toxic glycosuria. 1. He considers an alimentary cause. The patient had always been accustomed to a diet deficient in sweets and carbohydrates. After his arrival at the hospital, however, he had received comparatively large amounts of carbohydrates. 2. It is possible that a general infection had caused either a pancreatitis or a toxic disturbance of the islands of Langerhans. 3. The age of the patient, the hypertension and the cardiac disturbances indicate the possibility of an incipient diabetes. The author comes to the conclusion that the case may be considered as one of latent insufficiency of the islands of Langerhans. This insufficiency became manifest as the result of the acute febrile condition.

Treatment of Acute, Localized Phlebitis of Lower Extremity.—Deutsch describes a method of treatment which he employed in nearly 600 cases of acute, localized phlebitis of the lower extremity. The main factor of this treatment is a zinc oxide bandage. It may be applied even in those cases in which the phlebitis extends to the upper part of the thigh. However, in patients who are febrile, the application of the bandage is postponed until the fever has subsided. The author emphasizes that the bandaging requires a certain skill and experience. The bandage has to be carefully modeled to fit the leg; that is, it should neither compress the veins nor be too loose. It is a substitute for the lack of tonus in the tissue. Before the bandage is applied, sulphonated bitumen or an iodine ointment is spread on the skin. The first dressing does not have to be removed for about a week. The second one may be left on for two weeks. A third bandage is seldom required. Care should be taken that the bandage reaches at least a hand's breadth above the upper limit of the phlebitis and it should extend to the middle of the foot. The main advantages of this method are that the pains disappear almost immediately and the patients do not have to remain in bed. Only in cases in which the phlebitis is localized in the vena saphena parva should the patient be confined to bed. The author states that a few neurasthenic persons found the bandage annoying, and it had to be removed. Two patients died from embolism. In nearly all other cases the method was successful.

Zeitschrift für Kinderheilkunde, Berlin

48: 125-312 (Aug. 12) 1929

*First Epidemic of Acute Anterior Poliomyelitis in Roumania. M. Manicatide, A. Brătescu and A. Rusescu.—p. 125.
*Complement Fixation Reaction in Scarlet Fever. Von Naumann.—p. 157.
*Capillary Resistance and Number of Thrombocytes in Tuberculosis. M. Giuffré.—p. 177.
Length and Weight of Infants and Children. W. Kornfeld.—p. 188.
Circumference of Wrist in Infants and Children. W. Kornfeld and H. Schiller.—p. 208.
*Thyroxin Treatment of Congenital Myxedema. E. Nobel and W. Kornfeld.—p. 216.
*Complete Healing of Tuberculosis in Children. E. Nobel and R. Seidmann.—p. 226.
*Pathogenesis of Acetonemic Vomiting in Children. W. Heymann.—p. 230.
Pathogenesis of Sclerema Neonatorum. W. Heymann and L. Loeffler.—p. 238.
*Percutaneous Immunization (Löwenstein) in Diphtheria. H. Baar and A. Grabenhofer.—p. 248.
Injury of Kidney Caused by Irradiated Ergosterol. W. Putschar.—p. 269.
Persistent Vernix Caseosa. E. Mayerhofer.—p. 282.
Course of Alimentary Blood Sugar Curve in Children. G. Erb.—p. 291.
Increased Incidence of Respiratory Diseases in Winter. O. Kirsch.—p. 298.

First Epidemic of Acute Anterior Poliomyelitis in Roumania.—Manicatide et al. state that until the summer of 1927 only sporadic cases of acute anterior poliomyelitis had been noted in Roumania. Preceding the epidemic in 1927 there occurred a period during which sporadic cases were observed. The epidemic began in Bucharest and gradually spread throughout the entire country. The number of cases in Bucharest was 269 and in Roumania (including Bucharest), 2,300. In the majority of cases the children who contracted the disease were well developed and well nourished. It was frequently noted that the child of a man living in a part of the city free from poliomyelitis but working in part of the city in which it was prevalent developed the disease. The number of cases of the various forms of the disease observed in 170 cases at the pediatric clinic of the university was as follows: spinal form, 125 (73 per cent); pure bulbopontile form, eleven (7 per cent); bulbopontile form together with spinal paralysis, thirty (18 per cent), and meningitic form, four (2 per cent). Of eighteen patients treated with convalescent serum two were cured, seven were improved, one was not improved and eight died. Of twenty-seven patients treated with serum from the Pasteur Institute, six were cured, eight were improved, eight were not improved and five died. In twenty patients in whom autohemotherapy was used three were cured, seven were improved, eight were not improved and two died.

Complement Fixation Reaction in Scarlet Fever.—Of sixty-four children with scarlet fever examined by von Naumann, fifty-six showed an unquestionably positive complement fixation reaction. On the basis of this study he states that the complement fixation reaction with specific streptococcus antigens is of great diagnostic value. The reaction appears in the first week of the disease and in the second week becomes sufficiently marked to be of diagnostic value. The reaction usually becomes negative after the fourth week. Extracts that can be used in the reaction may be obtained from the majority of the streptococci isolated from patients with scarlet fever; satisfactory extracts may also be made with some streptococci not obtained from scarlet fever patients. The specific character of the reaction lies in the production of antibodies. In various other streptococcus diseases, particularly in exanthems, antibodies giving the complement fixation reaction were not found; this fact increases the diagnostic value of the reaction. The author emphasizes the fact that the complement fixation reaction is of practical value in the diagnosis of scarlet fever. By means of it one may diagnose atypical cases (scarlet fever without exanthem and cases in which the exanthem has disappeared or is not characteristic).

Capillary Resistance and Number of Thrombocytes in Tuberculosis.—From his study of fifteen tuberculous children (in five of whom manifestations of purpura were present) Giuffré concludes that the changes in the capillaries as shown by capillaroscopy and the determination of the capillary resistance is of greater value than are changes in the number of the blood platelets in the circulating blood. In tuberculosis in children the number of blood platelets per cubic millimeter is usually normal or increased during afebrile periods. A decrease in the number of blood platelets, such as usually occurs during fever, is not always accompanied by manifestations of hemorrhagic purpura. In cases of purpura in tuberculosis the capillary resistance is regularly decreased, sometimes in the skin of the entire body but more frequently in only the lower extremities. Corresponding to the decreased capillary resistance, the capillaries show changes in their circumference and in their form, particularly in the vicinity of hemorrhages. In cases of tuberculosis in which manifestations of purpura are absent, a decrease in the capillary resistance is sometimes noted. This proves that the decrease in the capillary resistance, although of great importance, is not the only factor in the pathogenesis of purpura.

Thyroxin Treatment of Congenital Myxedema.—Nobel and Kornfeld report excellent results following the use of thyroxin in the treatment of congenital myxedema in a girl, who, although 17 years of age, could not stand or walk alone and whose body length was only 81.5 cm. (32 inches). The administration of thyroxin for one and one-half years caused an increase of 18 cm. ($7\frac{9}{100}$ inches) in the body length. The ossification of the carpal and tarsal bones, which had been greatly retarded, went on to completion, the characteristic changes in the soft parts disappeared, and the mental condition of the patient improved.

Complete Healing of Tuberculosis in Children.—Nobel and Seidmann studied the question of the biologic healing of tuberculosis in children, by means of the tuberculin reaction. Fifty patients with various tuberculous and nontuberculous

conditions, who had given a positive Pirquet reaction, were reexamined by means of the tuberculin test after a period of from four to seventeen years. Only one of the fifty patients gave a negative Pirquet reaction; forty-nine of them gave positive Pirquet reactions, showing that the tuberculous process diagnosed previously was still positive and that living, virulent tubercle bacilli were present. On the basis of the results of this study, the authors conclude that the biologically complete healing of the first tuberculous infection is a great rarity.

Pathogenesis of Acetonemic Vomiting in Children.—Heymann emphasizes the resemblance, from both the clinical and the pathogenic point of view, between acetonemic vomiting in children and hyperemesis in gravidas.

Percutaneous Immunization (Löwenstein) in Diphtheria.—In experiments on guinea-pigs Baar and Grabenhofer noted that the percutaneous application of diphtheria toxoid completely immunized the animals against comparatively large doses of diphtheria toxin, even doses in excess of the minimum lethal dose. Guinea-pigs immunized percutaneously were resistant to an intraconjunctival infection with virulent diphtheria bacilli. From 50 to 60 per cent of percutaneously immunized children were Schick negative within six weeks and from 70 to 75 per cent were Schick negative within four months. The number of successful immunizations increased with the number of toxoid inunctions.

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28: 1-164 (Aug. 20) 1929

*Carcinoma of Ureteral Orifice in Bladder: Cured by Resection. R. Bachrach.—p. 2.
Position of Catheter in Bladder: Determined by Roentgenogram. M. Burger.—p. 7.
*Diagnosis and Treatment of Paranephric Abscess. R. Friedrich.—p. 15.
Technic of Two Stage Prostatectomy. R. Glas.—p. 38.
Nephrolithiasis: Operative Treatment. K. Haslinger.—p. 42.
Primary and Secondary Catarrhal Cystitis. A. Lieben.—p. 61.
Relation of Pyonephrosis to Cystic Ureteritis. R. Paschkis.—p. 64.
Transplantation of Ureter and Extirpation of Bladder: Technic. H. G. Pleschner.—p. 74.
Etiology and Treatment of Inflammation of Urinary Tract. E. Teltscher.—p. 91.
Nephrectomy in Treatment of Infected Pelvic Kidney. A. Zinner.—p. 98.
*Tuberculosis of Hypertrophied Prostate. A. Weiser.—p. 105.
Gas Gangrene of Urinary Bladder. A. Weiser.—p. 113.
Nontraumatic Perforation and Fistula of Urinary Tract. A. Weiser.—p. 120.
Calculus of Prostatic Urethra. A. Weiser.—p. 160.

Carcinoma of Ureteral Orifice in Bladder Cured by Resection.—In Bachrach's patient, a man, aged 63, the carcinoma developed from a nonmalignant papilloma in the course of treatment with high frequency current for a period of more than two years. Resection of the wall of the urinary bladder, including the ureteral orifice, was performed, together with reimplantation of the ureter into the bladder. Microscopically the tissue surrounding the tumor was normal. As the patient's condition was satisfactory seven months after the operation, Bachrach concludes that in this instance partial resection, such as was desired by the patient, might have been sufficient, although the prognosis in malignant tumors of the urinary bladder is unfavorable in general and a radical operation is therefore indicated.

Diagnosis and Treatment of Paranephric Abscess.—Friedrich's report covers the results of operation in forty-three patients who came to Hochenegg's clinic within the last twenty-five years. From the onset of the disease to the time of surgical intervention, a period of from four to six weeks usually elapsed, mainly because of the difficulty of diagnosis, as no local symptoms were evident. A negative result of urinalysis is not conclusive of freedom from suppuration of the kidney or its capsule. Aside from local evidence of involvement, a guide in diagnosis may be given by roentgenograms. The danger of infection is considerable if exploratory puncture is performed; Friedrich therefore advises it only as a last means of examination in doubtful cases. In the differential diagnosis, as long as only general symptoms are evident, typhoid, paratyphoid and acute pyelitis must be considered. The frequent occurrence of staphylococci points to the close interrelation with peripheral suppurations and may be taken as proof of the occurrence of metastatic infections. Friedrich reports a mortality of 9.3 per cent. Twenty-six of his patients were men; seventeen, women. In twenty-three patients the right side was involved. The prognosis is, on the whole, favorable and depends on the primary disease.

Tuberculosis of Hypertrophied Prostate. — Weiser reports this condition in a patient, aged 72, who suffered from acute retention of urine but was otherwise in perfect condition, no signs of tuberculosis being evident. Rectal examination revealed a tumor of the prostate. After satisfactory functioning of the kidneys had been demonstrated by means of the water concentration test and the indigo carmine test, prostatectomy was performed. Recovery was slow and complicated by a necrosis in the region of the wound, which healed only after three weeks; a fistula was still present five months later. The patient's condition remained poor. Microscopic examination revealed adenomatous hypertrophy and in one lobe an old tuberculous cavity together with fresh miliary foci. On the basis of his personal experience and a review of the literature on the subject, Weiser advises microscopic examination of every resected prostate. In cases of early recognition of tuberculosis, he considers specific treatment or roentgen therapy preferable to operation.

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71: 481-568 (July) 1929

*Occurrence of Alcoholic Disease Under Prohibition in Finland. J. Hagelstam.—p. 481.
*Malignant Ovarian Teratoblastoma. E. A. Björkenheim.—p. 492.
*Acute Pancreatic Necrosis. H. Elving.—p. 509.
Clinical Goiter Types in South Finland. J. Wahlberg.—p. 533.
Stimulation of Eighth Nerve in Otolith Apparatus. F. Leiri.—p. 537.
*Primary Pulmonary Carcinoma and Chronic Pneumonia. K. Lindberg.—p. 541.

Occurrence of Alcoholic Disease Under Prohibition in Finland.—Hagelstam's material comprises the total number of medical cases treated in the Helsingfors city hospital in the ten-year period of prohibition, from 1919 to 1928. A marked increase is noted in the frequency of disorders due to the use of alcohol, particularly from 1923 on, when smuggling of spirituous liquors had become established. Chronic alcoholic intoxication has become more and more common in forms rarely seen before. The increased morbidity is assigned partly to increased consumption of alcohol, partly to the doubtful quality of the smuggled product.

Malignant Ovarian Teratoblastoma.—In Björkenheim's patient, aged 21, with a history of normal delivery and excision six weeks afterward of an ovarian teratoblastoma in combination with a mucinous cyst, two large metastases, in the omentum and the Douglas pouch, respectively, were extirpated one and a half years later. The complicated structure resembled that of the primary tumor, with a more irregular arrangement of the tissues, abundant tissue elements characteristic of the central nervous system, and of sarcoma-like appearance. Two months later a large vaginal tumor was removed, rapidly followed by recurrence, with excision, and two weeks later by another recurrence. Death occurred within a month. The last tumors were also teratoid (implantation metastases) with strongly infiltrated tissue and definitely malignant, sarcomatous character.

Acute Pancreatic Necrosis.—Seven cases are reported by Elving. In six, laparotomy was done, with incision of the pancreatic capsule and drainage and in three with cholecystectomy; one case was fatal. In the seventh case, with disturbance lasting three weeks, the tenth rib was resected and the pancreas was drained posteriorly; the patient died. In one instance recurrence set in after nine months; cure was effected after relaparotomy with incision of the thickened pancreatic capsule and removal of an infected gallbladder. The Wohlgemuth test is considered of great value in diagnosis. Operation is advised immediately after the diagnosis is made. If the patient's condition permits, radical treatment of any pathologic condition of the biliary tract is indicated.

Primary Pulmonary Carcinoma and Chronic Pneumonia.—Lindberg reports a case of bronchial carcinoma with stenosis and complicating chronic pneumonia. In thirteen of forty-nine cases of bronchial carcinoma simultaneous pneumonia was demonstrated macroscopically, six of these being definitely chronic pneumonias.

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